DOMESTIC ENGINEERING

Whole No. 912. Vol. LI. No. 10. 325 Dearborn St., Chicago. June 4, 1910

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WOMEN AND CHILDREN FIRST!

Master-Boatswain—
Boatswain—Here, master. What cheer?
Mast.—Good: speak to the mariners: fall to't yarely or we run ourselves aground: bestir, bestir.
—"The Tempest," Act 1, Scene 1.

Responsibility accrues to everything possessing life in proportion to its capacity for self-expression.

The chief line of division between man and the lower animals, both possessing life-functions in equal degree, is the gift of speech.

Male animals indicate their sense of responsibility by defense of their mates and female animals will fight to the last gasp in protection of their offspring. The most mongrel mother-dog will lick its ugliest cur-pup back to a state of sanitation with the utmost solicitude, giving it as much attention as if it bore the prize blue ribbon. Animals, however, are limited in self-expression and their responsibilities are of correspondingly short duration.

The same differences in responsibility, proportionate to capacity for self-expression, are to be noted in the different races of men. The Australian aborigines, with a vocabulary of less than 200 words, unable to count any higher than ten, have low ideas of morality, distinguish between "meum and tuum" by force and assume their varying family responsibilities at the dictates of desire, according to their fighting ability.

We are Americans. Over 100,000 words await our beck and call for the manifestation of our inner strivings. We stand in the front rank of nations. Our greater powers bring with them greater responsibilities.

Non-progressive races of men have kept their women for pack-bearers, hewers of wood, drawers of water and camp-attendants.

Enlightened nations have recognized the importance of women's missions, the stirpicultural virtue of monogamy and the sanctity of child-life.

To accomplish great results, one must have great aims, great ambitions, tenacity of endeavor and energy well-directed. Throughout all these, there must be a singleness of purpose, of character unswervable. A life-giving slogan is needed to sustain effort to a successful conclusion. Every con-

queror of obstacles has had in his heart such a slogan to steel him in moments of stress.

"Jerusalem for Christ" was a heart-cry that revived the drooping spirits and goaded the aching limbs of thousands of weary crusaders in their tedious and dangerous marchings across Europe.

"From Cape to Cairo" has stimulated hundreds to bring about the realization of what was deemed at first the visionary babbling of a dreaming promoter.

The man whose life does not contain some slogan expressive of his purposes and hopes is in an unhealthy condition of mind and his efforts will be unprofitable because they lack direction and incentive.

To the sanitary engineers of the United States, of whom the plumbing, heating and ventilating specialists are the chief, we offer the slogan:

Women and Children First!

No more energising slogan could possibly be desired by man as a dominant note for his life-work. We are accustomed to think of and refer to our labors in a general way as being conducive to national health. We need, however, to obtain a clearer and more vivid concept of its importance.

Our National Health Centers in the Women and Children of This Country.

Every ineffective job, each case of slipshod workmanship and "shoddy" installation is a direct attack on the health of the nation corporate.

The work of plumbing, heating and ventilating affects the nation in a way that the work of no other professions do.

Architects may conceive, design and execute the most ornate edifices and bad plumbing will turn a palace into a mausoleum.

Purveyors of domestic furniture and trappings may carpet our dwellings with the choicest products of the oriental looms, and supply furniture of rarest woods, exquisitely carved and joined, but inefficient heating and ventilating will convert a home of luxury into a pest-house, a transient shelter for a race of victims of tuberculosis, consumption and kindred diseases.

The Home is the Woman's Place of Business.

It is the destiny of women to have to spend seven-eighths of her life within the walls of the home man provides for her. Woman is the presider over the household, the guardian of a nation's domesticity.

How important, therefore, is it that she shall be protected in this work by healthful conditions.

To woman is also given a still greater mission, a duty of providing heirs to our national inheritance. Man has hitherto shown his ignorance and indifference by leaving to chance, in great measure, the fate of the woman and the child in the earlier stages of this work. Strenuous efforts to mold the result into some satisfactory form is made ten or fifteen years too late, and his failures in this direction are piously placed to the charge of Providence. It is amazing to consider the inconsistency of man's mind in these matters. The man who will spend weeks and months in the study of producing a perfect breed of cow or horse, giving every attention to the diet, stabling, exercise and sanitary condition of the mother animal, both before and after foaling, will dig his well within the danger zone of a privy-vault, will expect his household to do work in a cellar containing rotten vegetables and will provide for their housing in an eight-room dwelling house, five rooms of which never know the benefit of sunlight. The same man, while boasting of the prizes captured by his horses and cattle at the local fairs, will bitterly complain of the ill-health of his wife and the puny frames of his children.

Such conditions in different degrees and under varying circumstances are to be found prevailing throughout the country. The lack of knowledge is deplorable, and is still more surprising when we come to consider the number of articles on sanitary subjects published from time to time in the country's press. The trouble is that our reading is omnivorous.

We are too much inclined to read for the purpose of experiencing the sensation of the tickling of the mind. Our reading is intended to divert our thoughts rather than to concentrate them.

The responsibility of educating the public to further importance in the work of national sanitation, lies directly with the plumbing, heating and ventilating engineers of the country, and that undoubtedly means you. If every plumber made up his mind to give to his local paper one item of information concerning sanitary developments, the trade would benefit immediately and immeasurably by such volunteer press work. At present, sanitary publicity is confined to a few trade journals, and a few bulletins issued by state and city boards of health, one of the most praiseworthy examples being a sanitary bulletin, sent out by Dr. W. A. Evans, the health commissioner of Chicago. We quote two or three sentences which you will do well to copy and place in your store window.

Filth for Flies and Flies for Fever.

With such a text it should be easy to preach a good sermon, pointing out the evils of the filthy refrigerator-trap, the odorous garbage-bucket and the vermin-laden refuse-heap. The same bulletin says:

The Birth of a Fly May Mean the Death of a Baby.

This may seem radical, but read the following press clipping, which has been received since com-

mencing this editorial, and then you will give more serious attention to the full import of this quotation.

FLY CAUSES DEATH.

Edward H. Pratt Succumbs to Blood Poisoning.

JERSEY CITY, May 25.—Edward H. Pratt, president of the Pratt Roof Protection Company and a prominent business man in the Bergen section, died today in Christ Hospital from blood-poisoning. This resulted from the venom in the blood of a house-fly entering a scratch in the right hand made by a kitten.

Dr. Gordon K. Dickinson advised him to go to Christ Hospital for treatment. When all remedies failed it was decided to amputate the hand. Mr. Pratt's condition grew more serious and the hospital surgeons realized that death was only a matter of a few days.

Mr. Pratt was forty-five years old. He lived with his wife at 7 Gautier Ave.

Referring to the lack of ventilation and light in living-rooms, we have another quotation full of common sense:

Dark Living Rooms Speedily Plant Candles on Your Head.

If some of the solicitude that people show in providing neighbor-gratifying illumination for the dead had been brought into play a year beforehand in supplying light and air to the living-rooms, there would have been no funeral. Unfortunately, sunlight is supposed to spoil the front-room carpet. The carpet costs $50.00. Pull down the blinds and let the children die!

It is our mission to teach the public that diseases come not from devils, but from dirt and ignorance.

The bulletin referred to indulges in poetry:

God lent his creatures life and air,
Waters opened to the skies,
Man locks him in a stifling lair
And wonders why his brother dies.

We offer the slogan, therefore, to you as one of the most powerful arguments for the bringing about of the use of the best sanitary installations available. Dollars should fade into insignificance when pitted against the health of those to whom we are bound by ties of family affection or interest. Men will jump into a sea of fire to save a woman from burning, whose name they do not know, whose face they have never seen, and whose existence they have never dreamed of. The same man will allow conditions to exist under his eyes daily which would bring about the death of the same woman just as surely, but the process is slower. She is burning up with disease, but the imminence of the danger does not appeal to him. To us belongs the task of sounding the slogan:

Women and children first!

NEW BUSINESS VENTURES.

J. E. Pickens has opened a plumbing and heating establishment at 662 Schuyler Ave., Kankakee, Ill.

Angher & Feige have opened a plumbing and heating establishment on Third St., Huron, S. D.

Keefe & Murphy, New York City, has been incorporated with a capital of $5,000 to conduct a plumbing and heating business.

Charles Blair has opened a plumbing establishment on West Water St., Decorab, Ia.

The John O'Hare Co., Mannington, W. Va., has opened a branch of his plumbing business on Second St., Clarksburg, W. Va.

Percy Williams & Co. has engaged in the plumbing business at 216 Park Ave., Oconto, Wis.

The Cunningham Plumbing & Heating Co., Kansas City, Mo., has been incorporated with a capital of $3,000. The incorporators are: J. P. Cunningham, Edward Cunningham, W. F. Zumrupp.

The Clarksburg Plumbing Co., Clarksburg, W. Va., has been incorporated with a capital of $10,000. The incorporators are: H. E. Stealey, J. B. Stealey, M. L. Pritchard, L. Peck and R. S. Douglass, all of Clarksburg, W. Va.

The Independent Plumbing Co., Portland, Ore., has been incorporated with a capital stock of $5,000. The incorporators are: M. W. Akeyson, E. D. Barnett and George W. Woolette.

F. W. Miller Heating Co., Chicago, has been incorporated with a capital stock of $10,000 to conduct a heating business. The incorporators are: Frank W. Miller, Clarence D. Bauers and Corabelle Robbins.

The E. M. Gregory Co., Normal, Ill., has been incorporated with a capital of $2,500 to conduct a plumbing and heating business. The incorporators are E. M. Gregory, R. C. Gregory and N. L. Van Ness.

W. G. Esson's plumbing establishment at Excelsior Springs, Mo., was destroyed by fire last week.

Edward Kelley has opened a plumbing establishment at Carthage, Ill.

Geo. P. Morell, 116 W. 164th St., New York City, has incorporated his plumbing specialty business with a capital of $5,000.

Willis Gilbert will soon open a plumbing establishment at Hillyard, Wash.

John Williams has opened a plumbing establishment at Hartford, Ky.

Mundorf Brothers is the name of the new plumbing and heating contracting concern that has just opened up for business at 16 Dock St., Sharon, Pa. The location is one of the best in the business section of the city, and the concern starts out with a number of high-class contracts, including several residences in Sharon.

E. G. Moore has established a general plumbing and steam-fitting business at Washburn, Wis. He has leased a portion of the Ungrodt building.

William J. Brenton will soon open a plumbing establishment at Council Bluffs, Ia.

James Stenson has opened a plumbing and heating establishment at Devils Lake, N. D.

The Staple Heating & Ventilating Co., Montgomery, Ala., has been incorporated with a capital of $10,000 to conduct a plumbing and heating business. The incorporators are: A. G. Staple, R. Hugger and G. S. Hugger.

The Hudson Plumbing & Heating Co., Jersey City, has been incorporated with a capital of $5,000, to engage in the plumbing and heating business. The incorporators are: Joseph C. Kuntz, Geo. Kuntz and Geo. Kuntz, Jr.

The Crowe-Archer Brass Works, Spokane, Wash., has been incorporated by F. C. Crowe, J. F. Archer and H. D. Merritt.

The Dakota Plumbing and Heating Co. is a new enterprise that has started in business at Sioux Falls, S. D. The members of the company are Gust Johnson, John Turner and Chas. Morris, all were former employes of the Sioux Falls Plumbing Co.

A PRACTICAL MANUAL OF STEAM & HOT-WATER HEATING

BY EDWARD RICHMOND PIERCE

SECTION VIII.

The discussion in regard to loss of heat from walls can be summed up as in Table L.

TABLE L.

Table Showing Probable Loss Per Sq. Ft. Per Hr. in B. t. u. from Average Well-Built Residence-Wall Surface When Rooms are at 70 Deg. F. Outside Air Zero. With various Wind Velocities. Rooms Not Over 12 ft. High and Continuous Heat Maintained Day and Night.

Loss in B. t. u. per sq. ft. per hr.

Brick Wall, Furred and Plastered, Thickness of Wall	No Wind.	Wind Velocities 2 Miles Per. hr.	5 Miles Per Hr.	10 Miles Per Hr.	Average winter wind, 12½ Miles per hr.	Wind Velocities 15 Miles Per hr.	20 Miles Per hr.	30 Miles Per hr.
1 Brick	17.	17.34	17.85	18.70	19.12	19.55	22.10	24.65
2 Brick	14.	14.28	14.70	15.40	15.75	16.10	18.20	20.30
2½ Brick	11.	11.22	11.55	12.10	12.37	12.65	14.30	16.00
3 Brick	10.	10.20	10.5	11.	11.25	11.50	13.	14.5
3½ Brick	9.	9.18	9.45	10.	10.13	10.35	11.7	13.

TABLE M.

Loss of Heat in B. t. u. from Window Surface per Square Foot per Hour, for Each Degree of Difference Between Temperature of Rooms, and Temperature of Outside Air. Varying Velocities of Wind. Room Not Over 12 ft. High. Heat to be Continuous Day and Night.

Description of glass—	—Wind velocities per hour— No wind	Wind 2 miles.	Wind 5 miles.	Wind 10 Miles.	Ave. winter wind 12½ Miles.	Wind Velocities Per Hour— Wind 15 Miles.	Wind 20 Miles.
Single thick common.....	.97	.99	1.02	1.07	1.09	1.17	1.26
Double window	.45	.46	.47	.50	51	.54	.58
Single skylight	1.09	1.11	1.14	1.20	1.22	1.30	1.41
Double skylight	.49	.50	.51	.54	.55	.59	.63

The use of this table is clear. If with an average wind of 12½ miles per hour one square foot of window loses 1.09 B. t. u. per degree of difference, then at 70 deg. difference, the loss will be $1.09 \times 70 = 76.30$ per hour and 100 sq. ft. would lose $76.30 \times 100 = 7630$ B. t. u. per hour.

To use this table, multiply total net square feet of exposed wall by factor representing wind-velocity required. For example—A wall equivalent to a 2-brick wall has, say, 125 sq. ft. of net exposed surface. We are required to estimate the probable loss per square foot per hour and total loss per hour, wind at average winter-velocity of 12½ miles per hour. Room 70 deg., outside air zero. Heat continuous.

Under 12½ miles we find probable loss per sq. ft. 15.75 B. t. u. Total net wall, $125 \times 15.75 = 1969$ B. t. u. per hour loss from the wall. The window loss will be found from Table M.

The window surface is one of the great sources of heat-loss. As already explained, the scientists are fairly well agreed upon the loss in dead calm as .97 B. t. u. per sq. ft. per degree of difference. If the outside was zero and inside 70 deg., the difference would be 70; then $.97 \times 70 = 679$ B. t. u. per hour per sq. ft. of window. If the window had 25 sq. ft. of surface, the total loss for the window "in a dead calm" would be 1697½ B. t. u., but with wind blowing this loss is increased as seen by Table M, calculating on an average winter rate of 12½ per cent to 1907½ B. t. u.

In order that those who do not care to take the time to make up a table of loss per square foot of window surface when the usual conditions required are called for, viz., zero outside, 70 deg. inside, wind normal, or, at an average of 12½ miles per hour, the following Table N will be of advantage.

Any other temperature than 70 deg. and any wind velocity other than the average, can easily be made use of by multiplying the required factor in Table M by required temperature. Desired the heat loss from a window when room is 60 deg. inside, outside 20 deg.; wind, 5 miles per hour. The factor per degree of difference by table is found under 5 miles to be 1.02 B. t. u. per sq. ft. The difference between 60 and 20 = 40. Then, $1.02 \times 40 = 40.\frac{8}{16}$ B. t. u. In practice this would be called 41.

Table N.

Showing probable loss per sq. ft. of surface of window per hour with air at zero outside, 70 deg. F. inside. Normal or average wind velocity of 12½ miles per hour.

Description of Window	Av. Win. Wd. Vel. per Hour	Prob. Loss Per Sq. Ft. Per Hr.
Single thickness, common	12½ miles	76.3
Double window	"	35.7
Single skylight	"	85.4
Double skylight	"	38.5

It may be found useful to have a table giving in square feet and fractions thereof the area of the usual windows found in buildings, and for this purpose Table N-1 is given:

TABLE N-1.
Glass Surfaces in Windows.
Areas in Square Feet and Fractions of a Foot.

Ft. In.	Ft. In. 1 8	Ft. In. 1 10	Ft. In. 2 0	Ft. In. 2 4	Ft. In. 2 6	Ft. In. 2 8	Ft. In. 2 10	Ft. In. 3	Ft. In. 3 2	Ft. In. 3 4	Ft. In. 3 6	Ft. In. 3 8	Ft. In. 3 10	Ft. In. 4 0
3 6	5.81	6.42	7.	8.17	8.75	9.33	9.92	10.5	11.08	.....	.....	.....	.....	.....
3 10	6.36	7.03	7.67	8.94	9.58	10.22	10.86	11.5	12.14	12.78	.....	.....	.....	.....
4 2	6.94	7.64	8.33	9.72	10.42	11.11	11.80	12.5	13.19	13.89	14.58	.....	.....	.....
4 6	7.50	8.25	9.	10.49	11.25	12.	12.75	13.5	14.25	15.	15.75	16.50	.....	.....
4 10	8.05	8.86	9.67	11.28	12.08	12.88	13.69	14.5	15.30	16.11	16.92	17.72	18.52	.....
5 2	8.61	9.47	10.33	12.05	12.92	13.77	14.64	15.5	16.36	17.22	18.08	18.94	19.80	20.66
5 6	9.16	10.08	11.	12.83	13.75	14.66	15.58	16.5	17.41	18.33	19.25	20.16	21.08	22.
5 10	9.72	10.69	11.67	13.61	14.58	15.55	16.52	17.5	18.47	19.44	20.42	21.38	22.36	23.33
6 2	10.27	11.30	12.33	14.39	15.42	16.44	17.47	18.5	19.52	20.55	21.58	22.60	23.63	24.66
6 6	.....	11.91	13.	15.16	16.25	17.33	18.41	19.5	20.58	21.66	22.75	23.83	24.91	26.
6 10	.....	.....	13.67	15.94	17.08	18.22	19.36	20.5	21.63	22.77	23.82	25.05	26.19	27.33
7 2	.....	.....	.....	16.72	17.92	19.11	20.30	21.5	22.69	23.88	25.08	26.27	27.47	28.66
7 6	.....	.....	.....	.....	18.75	20.	21.25	22.5	23.75	24.99	26.25	27.50	28.75	30.
7 10	.....	.....	.....	.....	.....	20.88	22.19	23.5	24.80	26.11	27.46	28.72	30.02	31.33
8 2	.....	.....	.....	.....	.....	.....	23.13	24.5	25.85	27.22	28.58	29.94	31.30	32.66
8 6	.....	.....	.....	.....	.....	.....	.....	25.5	26.91	28.33	29.75	31.16	32.58	34.
8 10	.....	.....	.....	.....	.....	.....	.....	.....	27.97	29.44	30.92	32.38	33.86	35.33

To find area, note where the height as given at the left side of table intersects with width as given at top. For example: The area of a 5′ 10″ x 2′ 8″ window is 15.55 sq. ft.

We now come to the consideration of the matter of leakage from rooms through other sources than walls and windows.

Doors naturally present a source of intermittent loss that can only be covered with some general factor of safety, but outside doors should be specially considered as certainly as windows.

It is the practice of some to consider doors which open directly to room as having same loss as windows, and it is not a bad practice. Yet some doors are hardly so productive of loss as that, and for quite careful estimators the losses shown in Table O have been found to be quite exact for the average machine-made doors. This table can be used also for tongued and grooved board walls if they are perfectly matched and tight.

Table O.

Probable loss per hour per degree difference of temperature from outside doors in B. t. u. per sq. ft. of surface.

Thickness.	Soft Wood.	Hard Wood.
½ in	.58	.72
¾ in	.49	.65
1 in	.43	.60
1¼ in	.38	.56
1½ in	.35	.52
2 in	.30	.45
2½ in	.26	.41
3 in	.23	.37

Glass in doors should be figured with glass surface of room.

One very considerable source of leakage is found to be that from fire-places.

This loss can be more nearly measured than from many of the minor sources, such as loose-fitting doors and windows, and semi-direct openings, such as arise from careless carpenter or mason work in fitting door and window frames. These are sometimes so badly fitted as to cause very serious heat-loss. Usually a careful "measurer-up" will discover such conditions and note them but when figuring from plans it is always safe to put in a factor of safety for this and similar loss. This is usually covered in the times-per-hour provision made for change of air. Wooden and concrete houses quite often are so carelessly constructed in this respect that no mistake is made in allowing for three or even four changes per hour of total cubic contents of air.

Houses with big reception-halls, which may also be the living room and usually with a big fire-place, is a room to call for most critical examination. The fire-place throat, even if it has a good damper, that can be closed, had best be considered as always open, and the rush of air through such an opening is large.

Such fire-places often have an opening of full 144 sq. in., and it is of the utmost importance to find out about it.

Old houses with fire-places in the rooms quite often have no provision for shutting off the fire-place draft except a loose-fitting front.

These fire-places and other minor leaks, each perhaps small in itself, when all collected as one item, quite often produces a loss in B. t. u. per hour, several times the amount that would be required to maintain the cubic volume of air of the room itself at a given temperature, say, 70 deg. for an hour.

This can be illustrated by a very common condition found in residences. In a room, for example, 14x16x10 ft., containing 2,240 cu. ft., is found a fire-place with a throat, opening direct to a chimney, which is likely a 12x12-in. chimney or larger, and at least 30 ft. high. This fire-place throat may be 3x12, 4x12, or even 6x12 in.

When the temperature of the room is at 70 deg. F. and the external air is at 30 deg. F., the mean temperature of the chimney with the air from room going through it might be 50 deg., or 30 deg. in excess of outside air.

At this difference the 3x12 fire-place throat opening into chimney would discharge 66¼ cu. ft. of air per min. from the room to chimney, or 3,975 cu. ft. per hr. This gives 1,735 cu. ft. per hr. to be heated more than the cubic contents of room specified, or within 505 cu. ft. of twice the cubic contents.

If the chimney-throat was 6x12 in., the air moved

under conditions named would be 132½ cu. ft. per min., or 7,950 cu. ft. per hr., nearly four times the cubic contents. Think of trying to solve a fire-place problem by any ratio-rule based upon cubic contents!

(To be continued.)

AN OIL-BURNING POWER PLANT.

We submit to our readers the following interesting description and photographs of an oil-burning power plant designed and installed by the Thomas Haverty Co. for the Timken Bldg., San Diego, Cal. It is possible that few heating contractors outside of California are familiar with installations using this type of fuel, and a brief description of the equipment will therefore be of general interest.

Oil is stored 4 ft. below the level of the boiler-room floor and outside of the building in the street or alley, in a steel tank of 2000-gal. capacity. To start the boilers when they are cold, air-pressure is applied to this tank by means of two air-compressors, completely equipped with automatic starting devices and air-storage tank, shown at D.

These force the oil up into the burner until steam is generated. When steam is generated to about 40 lb., the air-supply is cut off. Oil is then pumped from the tank by means of the steam-driven pump and heater, C. This pump is provided with automatic governor for maintaining the oil-pressure desired.

The boilers are of the standard tubular type, and of 60 h. p., arranged in battery. One only is used at a time, the other being merely for auxiliary purposes.

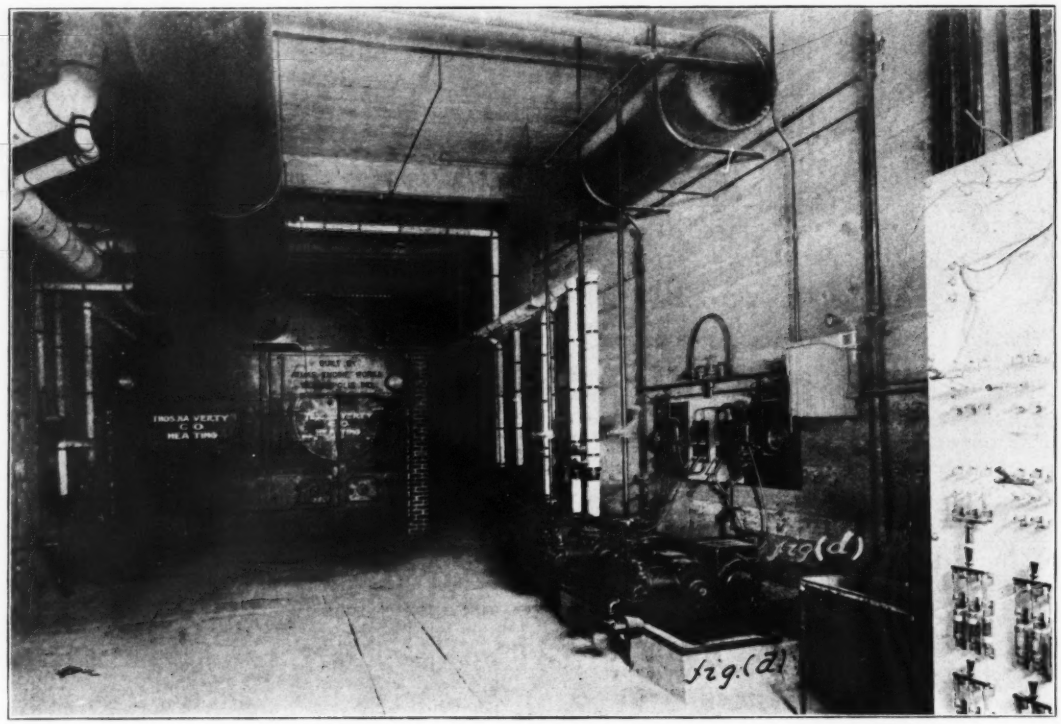
A is the hot-water apparatus used for the water-supply to the building. The tank is of 400-gal. capacity, provided with a steam coil which heats the water in winter when the steam plant is in operation. A "Tabasco" heater, setting underneath, heats the water in summer. This also uses oil for fuel, using compressed air for atomizing.

In addition to the automatic electric air-compressors supplying the air for atomizing the oil under boilers, in the absence of sufficient steam-pressure, they are also used for compressing air for the use of doctors and dentists, as this air is piped to every office in the building.

As will be readily seen by Eastern engineers, the man in charge of one of these plants has it comparatively easy. Nothing to do but watch the steam and water-gages and oil-valves; no ashes, soot nor coal to bother with nor fret about.

This plant is designed for a medium-sized office building, in a mild climate, where electricity is used for elevators and other power machinery, and is not at all typical of our large buildings.

It is possible that in the minds of our readers several questions will arise concerning the installation and the Thos. Haverty Co., with headquarters at 517 So. Los Angeles St., Los Angeles, Cal., will be pleased to reply to any special queries on the subject. The president of the company is Thomas Haverty, and vice-president, W. B. McCullough.



An Oil-Burning Power Plant, Recently Installed at San Diego, Cal.

Howard F. Pool, 5 Market St., Lynn, Mass., has just completed 40 years in the plumbing and stove business in that city. Mr. Pool was born in Rockport and received his education in the public schools of that town, learning the plumbing trade in Rockport and Gloucester. In April, 1870, Mr. Pool in connection with Leverett E. Smith, started in business in Lynn under the firm name of Smith & Pool, having bought out the business of Amasa Paul. In 1883 the partnership was dissolved, Mr. Smith settling in Gloucester and Mr. Pool remaining in Lynn. Soon after, he removed the business to the present location at 5 Market St. Mr. Pool remembers but two of the firms doing business on Market street today as being in business 40 years ago.

BOILER SCALE AND ITS PREVENTION.

It is seldom that information regarding the cause and formation of boiler-scale, its effects and the best means of its prevention are more clearly presented than in the following extract from a report rendered some time since by Arthur D. Little, chemist, of Boston:

"All water, especially surface-waters, contain more or less mineral matter in solution which remains in the boiler as an incrustation when the water is boiled away or converted into steam. The mineral ingredients most commonly found in water and which cause the formation of boiler scale are the salts of calcium and magnesium. When the water is converted into steam these substances gradually separate out from the solution in the form of deposits and coat the inner surface of the boiler with scale.

"Scale-formation is detrimental in several ways. It is a non-conductor of heat and the fires must therefore be driven harder to accomplish the same results. The water becomes separated from the boiler-plates and these latter become overheated and are gradually burned out. The tubes and feed-pipes of the boiler become more or less clogged and consequently become less efficient. Some of the scale-forming ingredients, especially magnesium chloride, also exert a corrosive action upon the iron.

"The aim of a boiler-compound is to convert these substances into insoluble compounds which settle in the form of sludge or mud and can be removed from the boiler by blowing or washing.

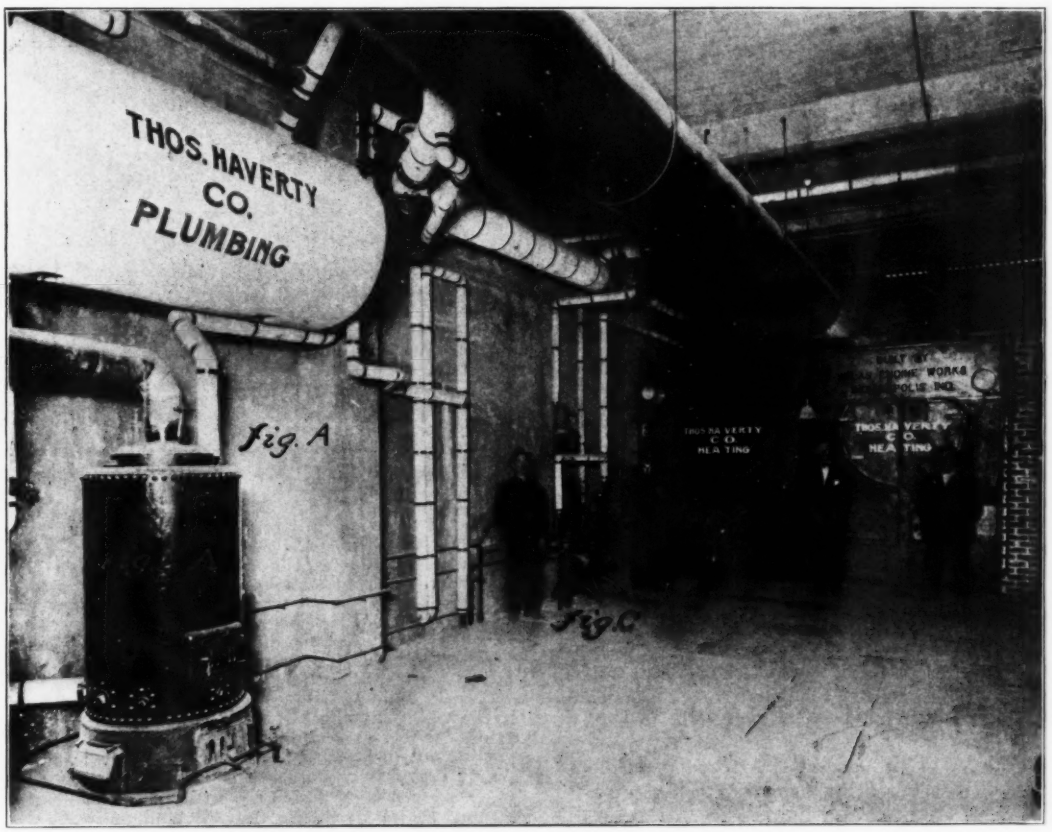
"We could prepare a list of nearly 200 materials which are known to have been used for boiler-cleaning purposes, but there are only four of these which are worthy of mention. They are: Soda ash, or sodium carbonate; caustic soda; tannin; kerosene.

"Soda ash is an alkali and will neutralize any acid in the water, and also precipitate salts of lime, magnesia, iron and alumina, in the form of soft sludge which can be easily removed when the boiler is cleaned.

"Caustic soda is also an alkali and neutralizes acids and aids in the precipitation of the various salts.

"Kerosene is used in connection with the above to prevent foaming or priming.

"Tannin is also used to prevent foaming or priming, and will precipitate certain mineral matters, although it is not so efficient in this respect as soda ash or caustic soda."



An Oil-Burning Power Plant, Recently Installed at San Diego, Cal.—See Article on Page 224.

CONTRACTS AWARDED.

Joseph Mullins & Co., Bridgeport, Conn., have secured the plumbing and heating contract on the three-family house on Maplewood Ave.

The Standard Sanitary Plumbing Co., West Reading, Pa., has secured the contract for the installation of the plumbing and heating systems for a row of new houses to be erected at Glenside.

The Fargo Plumbing & Heating Co., Fargo, N. D., has been awarded the contract for the installation of the new pumping outfit for the county hospital in that city.

The Hanley-Casey Co., Chicago, has secured the contract for the installation of the plumbing system in the Putnam Bldg., Davenport, Ia. The heating contract for this building was awarded to the Dixon Steam System Co., Chicago.

SEVEN RULES WHICH KICK BACKWARDS.

By C. H. Denison.

There are a whole lot of fellows in this business who seem to be walking around every day with a sort of sub-conscious grouch. They have got a feeling that they not only want to bust the dickens out of their neighbor, but also they don't give a whoop about their own business. For the benefit of such persons I am going to give seven rules which will assist them more surely to sink the shop and with a blamed sight more dispatch.

Make a dead-sure thing of it, my bully, while you are on the job and never worry, you'll arrive, that's sure.

Don't get peevish, for I am not going to talk about costs nor the overhead charges but merely humanity, which, of course, isn't in it for a moment with the mighty dollar.

There are several different ways in which to get a journeyman's goat every time, and render his disposition about as smooth as a cross-cut saw.

First: Whenever possible put off on him a bum kit of tools. Next, raise particular Cain, if he has a few leaks, or things don't line up well as a result of your niggerly policy.

Second: Howl like a suffragette turned loose, if the journeyman puts in more time than you think he really should, upon any particular job. Take notice of the fact that you never made a mistake yourself when you carried the tools. Why then should he?

Third: This one rings a bull's-eye every time. See to it that the journeyman works with the smallest amount of material that the job can be squeezed along on. This fellow can surely make bricks minus the straw. You did. Therefore shall he do likewise.

Fourth: Never under any circumstances praise a job that he has done well, or saved time upon. This fellow hasn't any conscience anyway, and if you did make him feel good just once he might get a swelled head and go into business for himself. You did yourself and you know it. Why not he?

Fifth: When he asks for information give it in such a manner that it will be about as clear as mud. Don't ever let him know that you didn't thoroughly understand the matter yourself but push matters right through and hold him responsible for your own mistakes. He will then know just what's expected and be prepared. You bet, he will if he's been the rounds (His satchel will be packed about this period of the game).

Sixth: When he does blunder cuss him out with speed and force. He deserves it anyway for being "mutt" enough to hang on to the job this long and he never was any good, anyway, in your estimation.

Seventh (and lastly): Hold back part of a week's wages on him the first pay-day, so that he can't possibly "put one over on you" by skipping. This will render him grateful and draw closer the bonds which bind him to you. If possible, "dock" him a couple of hours' lost time every other week as the fellow loafed horribly, anyhow. You did and you know he will after he gets "educated" to your system.

By following the foregoing rules accurately and pushing them home with vigor any master can have a procession of floaters walking in at the front-door (and blamed soon out at the back-door), each and every one of them not only willing but dern glad to assist him in sinking his shop.

It beats all, how glad the boys are to assist just such a man along his giddy way and help strew the pathway with a few extra thorns. Now while he believes that he is dead-sure cock of the walk, I wonder if the idea ever enters his coco that he is being played for a sucker? Why he's the boss, no one would ever dare monkey with him? Wouldn't they though?

We once had just such a four-flusher for our boss, and also on the job was a little plumber who was an Irishman and there with the goods, when it came to joshing and palavering. Now when the boss came around it was an understood thing among us on the job that Jimmy should get tangled up in the scenery and string the boss with his gift of gab and make him roar. Jimmy could do it and not get fired and he filled the part to perfection.

The boss never got to see one-tenth of the work and his temper was like a sedlitz powder every day.

We played that sucker to the queen's taste and he centainly deserved all he got.

A man who wants to run his business and do it right won't follow these rules. If the other fellow is determined to "hog" through, he can't do better than to paste them over his desk and learn them by heart and make each day busier than the previous.

PLUMBERS OBJECT TO INCREASE OF TAX.

A change in the present system of rates in the plumbing department at Salt Lake City, Utah is now under way, in which a charge of 25 cents is to be made per fixture, instead of $1 for each job. The proposed change is meeting with a stubborn fight from the master plumbers of that city, but it will probably be enacted into a law by the city within a short time.

Under the present system, it costs as much for a plumbing permit for a four-room house as for either of the Newhouse skyscrapers. A blanket rate is made in each instance, but the city figures it is not getting enough money out of the work of the plumbing inspector, for whom an assistant is to be provided shortly. The proposed change would not lessen the receipts of the city on the small jobs, but it would mean a big thing in the business part of the city, and in instances where apartment houses are constructed. In most houses there are at least four fixtures —bath, toilet, wash basin and sink—and it would cost 25 cents for each service. In apartment houses, hotels and office buildings, the difference would greatly benefit the city.

It cost just $1 for the plumbing permit for the Newhouse building and $1 for the Boston building. J. W. Farrell, plumbing inspector, had to make at least 30 trips to each of these buildings to inspect the plumbing as it was put in, but it brought no more to the city. For the Utah and Newhouse hotels it will cost only $1 each, unless the proposed change is to take effect before the permits are taken out for the plumbing.

It is estimated by Mr. Farrell that it would cost at least $250 each for the two buildings erected by Samuel Newhouse, and other office buildings down town would also pay at least $100 to the city for the permits at 25 cents for each fixture. In these buildings there is a wash-basin in nearly every room and a toilet on each floor.

Master plumbers are fighting the new scheme on the ground that it would cut their profits, as they would have to take the work at practically the same as at present. The position of the plumbing inspector is that it would cost the master plumbers nothing, as they would simply add this to the old rate, and the money would come out of the pocket of the builder, just the same.

Another change in the plumbing ordinance is being suggested to simplify matters in taking out permits and getting receipts. The plumbers are now forced to go to the offices of the plumbing inspector, city treasurer and city engineer on all jobs where permits are taken out, and they are asking that the ordinance be amended so that they will have to visit only one office, or two at the most.

Robert H. Walker, Elmira, N. Y., has secured the contract for the plumbing in the new Hulett building in that city.

DOMESTIC ENGINEERING

THE OPEN DOOR TO WEALTH IN HEALTH

TREATING SPECIFICALLY ON

SANITARY PLUMBING
HEATING
VENTILATING
STEAM-FITTING

ITS ESSENTIAL AIMS ARE THE ADVANCEMENT OF PRIVATE AND PUBLIC CLEANLINESS AND COMFORT AND THE FURNISHING OF STIMULATIVE EFFORT TO THOSE ENDEAVORING TO OBTAIN PERFECTION IN NATIONAL SANITATION.

Published Every Saturday by

The Domestic Engineering Co.

MAIN OFFICES,
323-325 Dearborn Street, Chicago, Ill.

NEW YORK OFFICE - - - - - 150 Nassau Street

SUBSCRIPTION RATES:

United States, Cuba and Mexico.....$2.00 a year
Canada .....$3.00 a year
Other Foreign Countries.....$4.00 a year
Single copies of current issue, 10 cents; copies of back numbers, 25 cents each.

Remittances.—Subscriptions are payable in advance, and remittances should be made by check, Chicago draft, postal or express money order, in favor of "DOMESTIC ENGINEERING."

Change of address.—The old address should be given as well as the new, and notice should be received a week in advance of the desired change.

NOTICE TO ADVERTISERS.

Copy and cuts for advertisements intended for a particular issue should reach the office of Domestic Engineering on Monday of the previous week if it is desired that a proof of the advertisement shall be submitted. New advertisements can be received up to noon of Monday of the week of issue, but no proof can be shown.

Entered as Second-Class Matter at the Post Office at Chicago, Illinois, Under Act of Congress of March 3, 1879.

Member of the Chicago Trade Press Association.
Member of the Federation of the Trade Press Associations of the United States.

SPECIAL NOTICE TO READERS.

Our readers are invited to send in articles on any topics covering sanitary interests as outlined above. Photographs and drawings with descriptions of special interest to plumbers and steam-fitters are welcomed. "Domestic Engineering" pays at space rates for all articles, notes, criticisms and news data so contributed.

CONVENTION DATES.

June 13, 14, 15 and 16, 1910.—The 22nd annual convention of the National Association of Master Steam and Hot Water Fitters, at Atlantic City, N. J. Headquarters at the St. Charles Hotel. President, Charles A. Geoghegan; vice-president, Edward B. Denny; treasurer, Juan A. Almirall; secretary, Henry B. Gombers, 260 West Broadway, New York city.

June 14 and 15, 1910.—Joint meeting of the Eastern Supply Association and the Central Supply Association, at Toledo, O. Headquarters at Hotel Secor. The officers of the Eastern Supply Association are: President, P. M. Beecher, Syracuse, N. Y.; first vice-president, John A. Murray, New York City; second vice-president, F. H. Locke, Boston; treasurer, F. A. Bucknam, New York City; secretary, Frank S. Hanley, 261 Broadway, New York City. The officers of the Central Supply Association are: President, Frank Collins, Toledo, O.; first vice-president, Geo. H. Gorton, Kansas City, Mo.; second vice-president, P. J. Frey, Minneapolis; treasurer, E. F. Niedecken, Milwaukee; secretary, Paul Blatchford, 1524 Tribune Bldg., Chicago.

June 21 and 22, 1910.—Annual convention of the National Association of Brass Manufacturers, at Atlantic City, N. J. Commissioner, Wm. M. Webster, 1112 Schiller Bldg., Chicago.

June 28, 29 and 30, 1910.—The 28th annual convention of the National Association of Master Plumbers, in Chicago. The officers of the association are: President, Walter D. Nolan, 721 14th St., N. W., Washington, D. C.; vice-president, A. Selden Walker, 341 Main St., East Orange, N. J.; secretary, Samuel Artz, 3028 M St., N. W., Washington, D. C.; treasurer, William McCoach, 1607 Sansom St., Philadelphia.

June 30 and July 1, 1910.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers, at St. Louis, Mo. The officers of the society are: President, Prof. J. D. Hoffman, Lafayette, Ind.; first vice-president, R. P. Bolton, New York City; second vice-president, S. R. Lewis, Chicago; secretary, W. M. Mackay, New York City; treasurer, U. G. Scollay, Brooklyn, N. Y.

PLUMBERS WANT LICENSE MONEY BACK.

The city-clerk's office at Atlanta, Ga., is being flooded with petitions from the master plumbers of that city asking the council to refund the money paid by them for licenses for the past four years, on account of a recent decision of the courts, which, they claim, annulled the city's right to collect such licenses. The license is $50 per year. The city-attorney is of the opinion that they cannot get this money back, as the decision of the courts was that the city had no right to demand an examination, which it did require of applicants. The decision did not affect the right to require a license. From the petitions it seems that the plumbers have agreed that they can get their license refunded, for they are all worded alike and drawn up in the same form. Among those who have filed petitions are D. W. Yarbrough, Boshlor-Wynne Plumbing Co., Farrell Heating & Plumbing Co. and the Bellingrath Plumbing Co.

NEW PUBLIC-COMFORT STATIONS.

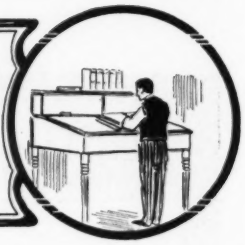
A public-comfort station is being erected in the Lake Front park at Michigan City, Ind.

Work has been commenced on a new public-comfort station in the Piedmont park at Atlanta, Ga. Architect Harry Walker prepared the plans. The building will cost in the neighborhood of $5,000.

F. E. Newcomb has opened a steam and hot-water heating establishment at Newport, N. H. He was formerly for 14 years connected with the G. M. Parks Co., Fitchburg, Mass.

BUSINESS MANAGEMENT

NEW METHODS FOR OLD



WAS HE FAIR TO THE JOURNEYMAN?

Editor "Domestic Engineering":—The other day I put a journeyman at work on a job of plumbing and he succeeded in getting things tangled up completely. I gave him the privilege of making the job good on his own time or quitting.

Now, as I know that there is much bum work put in, that the master has to make good, when the fault many times rests entirely with the journeyman, I would like to hear from some of the masters on the subject through the pages of your new department, and hope that you may see fit to publish this letter in your paper.

Minneapolis, Minn. D. H. R.

There are always two sides to a question and we hope that we may get some comments on this question from both the journeyman and the master.

STEAM-FITTING RESUSCITATED.

Editor "Domestic Engineering":—I have read with interest the controversy concerning the relative values of learning the heating or the plumbing business. Now, I may be biased in my opinion, having taken up heating as my work, but it strikes me that C. C., whose communication you published in the issue of May 21st, is very much biased in his.

In the first place, C. C. starts off with the sarcastic remark that he has "never seen the steam-fitter yet that was killed with work." Whether it is through lack of experience, I cannot say, but it has never been my misfortune to hear either directly or indirectly of anyone being killed by work in any business. Worry, yes; work, never.

He states, that the only figuring required is "to compute the amount of radiation, for a certain room, and the size of pipe required to supply that amount of radiation." This may be very true of the mechanic whose dream of success may be vague, but what about the man who owns his own shop? Must he not know more than that? Is it possible for a man to succeed with that meagre knowledge? Then, why is it that so many failures are recorded yearly? The knowledge, which C. C. says, is sufficient can be found in the back of any catalog. Let us all be master steam-fitters! Does C. C. think that he could found a profitable business on a few thousand dollars and the back pages of a catalog?

C. C. talks of joint-wiping. Are there no tasks in the steam-fitting line comparable to joint-wiping? Did C. C. ever try to bolt two pieces of flanged pipe with a copper gasket between? I'll wager he never has.

And now for C. C.'s last bit of chicancery. "Suppose," he says, "the temperature of this earth were to become an even 70 deg. the year round. What would become of heating?" Alas and alack! I cannot express the woeful feelings that arise within me. But has C. C. ever thought what would become of plumbing, if people ceased to need toilets or if children were born self-cleaning. Both suppositions are on the same plane of intelligence.

C. C. says: "Sanitary engineering is developing rapidly." So is heating. He then goes on to say that it has a wider field for a young man, etc. I do not think that he has proved it. By the admirable use of a lot of miserable gabble, he has sought to prove a point which is evidently beyond him.

But a word to the "anxious father" to whom C. C. has already spoken. Have you never thought of consulting your son as to which trade he likes best? Does it not occur to you, that your son will probably succeed in a business that he likes and fail in a business that he dislikes? We live but a short time, and we're a long time dead, so we might as well stick to something that pleases us even if the remuneration in money is not so great. And maybe there, O wise ones, is the solution of your problem.

New York, N. Y. Harry P. Kahn.

WHAT WOULD ASSIST MASTER PLUMBERS?

Editor "Domestic Engineering":—I see in issue of May 14th, your question: "What would most assist the master plumber of today." That can be summed up in about two words, or three, and here they are: **Get Common Sense.** The conditions of the master plumber's business will be just what he makes them. The business and the shop are a direct reflection of the man himself. If he is lazy, things will move slow; if dishonest, his men will be full of tricks; if ignorant, nothing will go right and there will always be trouble around that shop. A course in the good old "hoss-sense" would be the greatest blessing that could be given the parties as a whole in the plumbing and heating business.

When it comes to going after things and getting action the journeymen plumbers' association can give the masters cards and spades. The journeymen get action for their money. Can we say the same for the masters?

Detroit, Mich. S. K. L.

POINTERS FOR THE ADVERTISING MAN.

Editor "Domestic Engineering":—I see a great deal of good talk in all the papers about the value of advertising our business, yet much of this talk is rather general and I wish that you would give us a few good pointers in your new department, the reading of which affords me much pleasure from week to week.

Kansas City, Mo. Appreciation.

We will try and keep by the mark this time and make this advice specific. Here are some very good points and they will apply to any one in any part of the country:

1. See to it that your advertisement is set up in good clear type and that it has a neat, trim appearance.

2. Some people think it a good plan to have a different position in the paper. We do not favor this idea. Suppose that you changed the location of your shop every

month? Would you expect your customers to follow you about? When the people have got used to seeing your advertisement in a certain place they naturally are on the look-out for it in that one particular place.

3. In writing up copy for your advertisement, do not try to tell all you know nor the whole history of your business in one advertisement. One good clear thought briefly conveyed is worth a whole column of wandering dope in which you really don't know what you are saying or trying to prove. Find out what you want to say, boil it down and then some, cut out about one-half of the product and you will probably have it nearly right. These few ideas are for the asking.

SEND US A COPY OF YOUR SHOP RULES.

Editor "Domestic Engineering":—As I am going to open up a plumbing and heating business in the near future, I am writing to you for some information. Have you any copies of shop rules or would you be kind enough to publish some in your valuable paper?

Detroit, Mich. "Starter."

We have a copy of some shop rules, but would prefer to have some of our readers send us copies of what they are at present running under and give us any additional pointers they deem advisable. Your name will be published or withheld, just as you may request in your letter to us.

AN ARGUMENT FOR A VACUUM JOB.

The other day we were in a shop when a party came in and wanted a job of steam heating done, and the boss proceeded to go after the customer.

We were very much interested, as the man wanted a vacuum job, and the boss did not seem to know any too much about the matter himself. So we thought we would ask the question: How would you go at the matter to convince the man that a vacuum job was the proper thing? Suppose that the man did not want to pay the price?

How are you going to nail the job and give the man a plant, that he will be proud of when he has used it a while, and fix him so he will be your friend and an advertisement for you in the future?

Editor.

A CHANCE TO USE YOUR BUSINESS.

In several previous numbers of this particular department we have, from time to time, sprung various questions relative to certain things of more or less interest to the craft and business.

These have apparently produced excellent results and rather stirred things up a bit all along the line. Other questions of vital importance may appear from time to time as we move forward together.

The one which we wish to bring to your notice in this issue is a question which is of vast importance and to which many minds in many parts of the world are turning. Here it is:

Is it possible to work out a system for the disposal of sewage which will be capable of effective application to all parts of the country and all classes of towns and cities, a system which would measure up to and perhaps excel the most modern and correct methods of the present practice?

In making this inquiry we are actuated by motives of progress only, believing that in many places there are good ideas which have not been brought to the surface and which should be spread abroad for the benefit of the craft at large.

We turn this question over to our many readers and shall look with no little interest for the replies to this most important question.

"HOT WATER FOR DOMESTIC USE."

It is with pleasure that we announce the publication of a new work by the Domestic Engineering Co., entitled "Hot Water for Domestic Use," which is a complete guide to the methods of supplying and heating water for domestic purposes, giving each step to be taken and explaining why it is done. To those commencing the heating business and adding this to their plumbing operations, it will prove to be invaluable, offering as it does a clear presentment of all the underlying principles of hot-water circulation, and the general practices obtaining in the trade conducive to the best results.

The book is also of vital interest to the members of the plumbing and heating trades as a work of reference for consultation where any special difficulties are encountered.

The first chapter deals with the principles which underlie the heating of water for domestic use, and is so written that it makes the reader familiar with the properties of hot water and explains to him the behavior of water when subjected to heat or cold.

From there on the theme of the book is progressively explaining the difference between heat and temperature, and sensible and latent heat, and showing the progress of the circulation in circuit and velocity of flow of hot water in circulation.

The principles of heating water in ranges and a description of range-boiler connections are given in simple language, and an interesting portion of the book is devoted to the consideration of the pressure of water.

Kitchen ranges receive a good share of treatment. The evils encountered in water-backs and boilers, such as incrustation and mud deposition, are dealt with in succinct style. Heating water for domestic use with gas as fuel is an important subject to the plumbing at the present time. A description of the best practice in this branch of heating is clearly given. This is also true of heating water with steam and exhaust steam.

The work has been carefully edited by John K. Allen, whose acquaintance with the needs of the trade through long years of experience is a garantee of the accuracy of the data contained in the book and its price, 50 cents, renders it immediately available to everyone interested in the subject. The Domestic Engineering Co. will be pleased to forward "Hot Water for Domestic Use" to the readers of "Domestic Engineering" for 50 cents, postage prepaid. Send your orders in now before the edition becomes exhausted.

ELECTED DELEGATES TO CONVENTION IN CHICAGO.

At the regular meeting of the Syracuse Master Plumbers' Association, held May 24th, the following delegates and alternates were elected to represent it at the national convention, to be held in Chicago, June 28, 29 and 30: Delegates—T. X. Donovan, president; M. H. Jalonack, John J. Reidy, Fred W. Soper, Chas. A. H. Kienzle, John Oswald and B. Jos. O'Donnell. Alternates—Thos. Dougherty, P. F. McDonald, Chas. E. McCarthy, C. J. Straub, Rhoda McGraw and Thos. Meehan. The meeting was favored with the presence of Fred E. Fladd, Rochester, N. Y., president of the New York State Association of Master Plumbers.

OBITUARY.

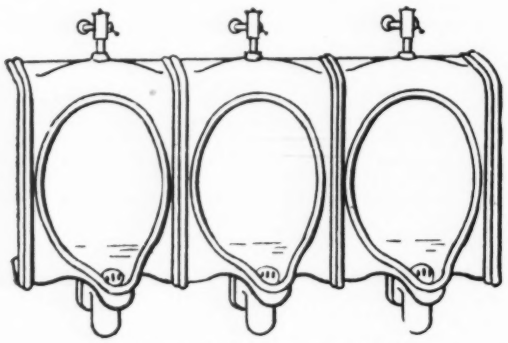
Wm. P. Lynn, who has conducted a plumbing business at East Boston, Mass., for several years, died at his home in that city on May 10th in his 36th year. He was a member of the Boston Elks and of the Quincy Club of East Boston. He is survived by his wife.

Lavatories and Urinals—First Types*

By Charles Weelans.

In our effort to piece together these few fragments of pottery history we have endeavored to subordinate detail to brevity depending for clearness upon the assistance of cuts taken from the various catalogues which in a measure serve to illustrate the original designs of the various articles and their development. We will not, therefore, dwell too largely upon the difficulties entailed in perfecting them, for the intricacies of pottery manufacture are so numerous that any introduction of new lines of work and their development must of necessity be accompanied with many difficult problems which would require a longer time to explain than is permissible in this note.

In a conference with a pottery manufacturer who had occasion to suddenly cease operations, the statement was made that "He liked the business because it was interesting." If the word "interesting" is sufficiently strong to convey a clear and adequate understanding of the feelings enjoyed by any successful Trenton manufacturer of pottery at the present day, he must either possess an enviable disposition or he fails to receive all the factory reports. The word "exciting" might better have been employed here as it is probably a trifle truer to nature and mild enough. This may have something to do with the apparently slow development of various ambitious undertakings in pottery manufacture, such as we are called upon to recite in this brief historical note.

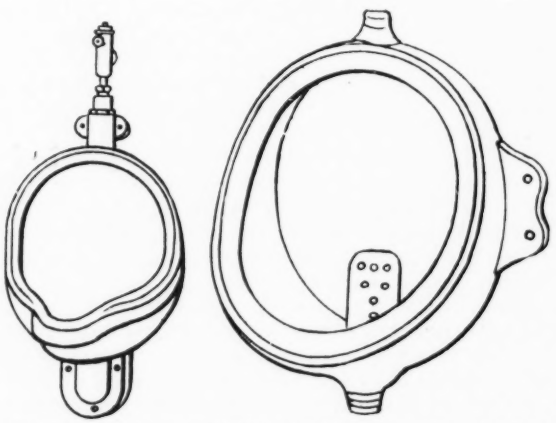


Latest Type of Vitreous Wall Urinals.

Upon delving into the historical archives of American sanitary we find that it was in the year 1873 that the first urinal was made. A new Palissy arose who for characteristics of stubborn determination to overcome difficulties, to subordinate the acquirement of wealth to the accomplishment of a worthy purpose was not unlike the ancient Palissy of whom so much has been written. The problems of manufacture were many and artisans few but Thomas Maddock, sr., had a purpose to accomplish; it was not enough that he was already conducting a highly profitable business in other lines of pottery: paying Standard-Oil dividends was not his highest aim in life. He had a purpose to accomplish which simple wealth could not substitute. In opposition to the judgment of associates, in the face of determined prejudice against home product, regardless of his lack of knowledge of the requirements of his undertaking, ignoring the lack of interest shown by his subordinates, and the absence of skilled workmen, he for a time withdrew his attention from the mere money-making proposition he was then conducting and ambitiously embarked in this new field of endeavor that his love of accomplishment might have greater opportunity. Like most advanced undertakings opposition arose from the very quarters most largely to be benefited by its success. Success in manufacture, therefore, as difficult as it was, was not of itself sufficient. Bitter opposition of the importers together with the prejudice of home consumers must be overcome. For several years, therefore, after success in manufacture had been accomplished the introduction of sanitary ware was slow. The question arose as to the wisdom of its continuance. Former financial successes had been used to foster what appeared to be present financial failure. Still the importation of sanitary ware went on in large quantities. What was to be done? Were the efforts of our pioneer in sanitary to be defeated when every other requirement of success had been so triumphantly met? Could prejudice be allowed to kill the thing it should have striven to help? The answer quickly came in increased output, more rapid improvements were noticeable, American ware was acceptable everywhere. What was the secret? The product had not been changed. The only improvement in its composition or its appearance was that a stamp marked "Made in England" was found on the back of every piece. Was it this that made trade flourish? With such important obstacles removed advancement was more rapid. To appreciate this more fully let us refer to the illustrations.

Urinals.

Our readers will readily recognize urinals of the first type manufactured in the United States by Thomas Maddock & Sons, Trenton, N. J., in the year 1873. They consisted of the old Bedfordshire flat-back made in three or more different styles. First is that of the simple flat-back; second, flat-back with lip; third, flat-back with lip and



Modern Type of Siphon Urinal Vitreous Ware, and First Type of Earthenware Urinal Made in the U. S.—Bedfordshire Flat Back.

shield or ventilator, all of which in installing are attached to the wall. For some years these styles prevailed with little or no improvement, although it was felt that they did not entirely meet the requirements. The urinal with shield or ventilator, although an improvement over the plain flat-back, was probably not so successful in ventilation nor as satisfactory from the standpoint of cleanliness

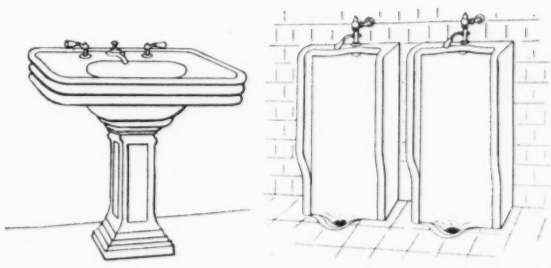
*Read by Charles Weelans, manager of the Monument Pottery Co., Trenton, N. J., at the fifth annual meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, held at Trenton, N. J., Jan. 20-22, 1910

as was desired. These serious objections continued to be met without correction until finally the idea of siphonage, which had been applied so successfully to closet-bowls, was adapted to the urinal, resulting in the origination of the siphon-urinal. This urinal, where wall-urinals are required, is probably the most satisfactory although a few of the older types are still made.

A later adaptation is shown of the siphon-urinal, inasmuch as these are not attached to the wall, as previous urinals were, but are made with integral pedestal fastened to the floor at the base and complete in one piece. This makes a neat, clean, and desirable article. They are usually set in stalls with marble or slate slabs.

The body used in the manufacture of the earlier types was a highly absorbent composition, but these later urinals are now all made in vitreous ware. The former absorbent body was an undesirable feature, especially in the urinal, but adversity had so long and so relentlessly followed the American potter that no manufacturer had the courage to depart from the old and well-beaten path until the handwriting on the wall grew exceedingly clear to even the most obscure vision. Ominous signs were noticed throughout the country and it was felt that a change in the quality of earthen table-ware at least was desirable. These signs were hung up in many crockery shops throughout the country and they invariably read "No Trenton ware sold here." This so touched the pride of the Trenton manufacturers of pottery that it was felt some remedy must be found. It was a severe blast and something must be done to tighten and protect the body. Probably no more serious condition than this ever confronted the American potter, and no condition was ever more successfully met for they evolved a new and highly successful composition which demanded not only new conditions but new treatment. Former experiences had to be abandoned and new lessons learned entailing much expense and much patient toil. As a result of this determined demand for improvement, therefore, a new sanitary product was introduced in the year 1891, known as "vitreous ware," by Moses Colier, at the Maryland Pottery Co., Baltimore, Md., and later by Thos. Maddock & Sons Co., of Trenton, N. J., and all first-class whiteware urinals of the types previously mentioned are now made of this vitreous product.

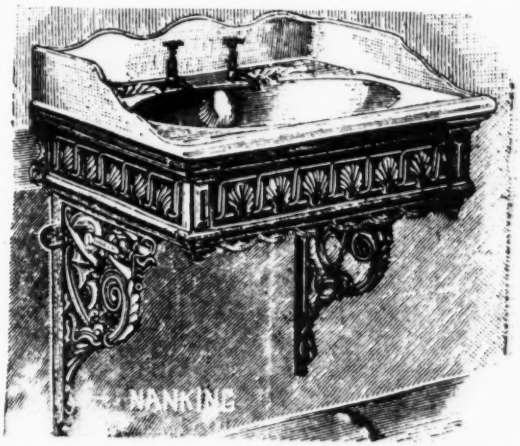
At about this time, or to be more exact, in February, 1893, there was introduced by the Trenton Potteries Co., under the direction of the writer, a new line of sanitary



One of the Modern Types of Vitreous Lavatories, and a Sample of Monument Porcelain Urinal Stalls.

pottery now commonly called "fireclay porcelain." This consisted of a body principally of fireclays covered with a white china engobe, glazed and finished in one fire. This composition was particularly well adapted for the manufacture of large pieces, such as baths, wash-tubs, sinks, lavatories, urinals, etc., and was extensively used in England. For a time after its introduction, however, it was replaced by a composition whiter in color and very similar so far as materials were concerned, to the earthenware composition, but this not being so successful we returned to the fireclay as first introduced. It was of this product that the next type of urinal was made, known as the high urinals of which there are several types.

The first urinals of this type were made by the Trenton Fire Clay & Porcelain Co., of Trenton, N. J., in the year 1898. These urinals were four feet high, two feet wide and rested on the floor, with slate top or cover and with slate partitions between each urinal. These fireclay urinals



Old English Lavatory of Which Our First Lavatories Were Copies.

seemed to meet the demand especially for use in hotels and public places better probably than any other urinals had yet done. They replaced the slate urinals completely for first-class work and are now in use in many of the finest hotels and public places in the United States. Under this encouragement improvements developed rapidly.

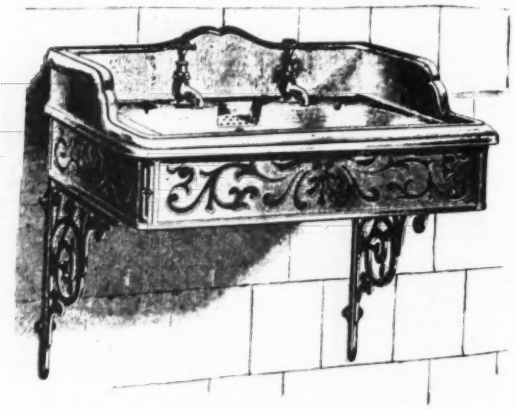
The slate top which was used in the first of these urinals has been abandoned, and a porcelain top made integral with the urinal is substituted. This was a decided improvement both in the appearance of the article and from a standpoint of sanitary perfectness for there were no cement joints in the usable parts of the fixture, but a smooth glazed surface easily cleaned. Having created a practical and acceptable article, attention was now devoted to making this style of urinal still more attractive in appearance.

A new departure has been made in this direction. We now have no partititions of slate or any other material whatever, but a complete fixture of pottery only. The urinal-stall proper is still made similar to the early type shown but the stalls are set closely together covered with well-fitting tops of porcelain, the joints of the urinals being covered by porcelain moldings running from the floor to the porcelain top, meeting it in such a way as to avoid the appearance of seams and joining firmly together all these separate parts without bolts, cement, or any other attachments whatever. They are made in two styles, one with low and the other with high ornamental tops. This has become a deservedly popular fixture and is extensively used.

There are places, however, where plainer fixtures are demanded and to suit this taste a still later design was arranged in which the top and urinal integral but side-shields have been added which are also an integral part of the fixture. These urinals are arranged in different ways to suit the taste of the purchaser; some are set a

few inches below the floor while others rest upon the floor. Some join each other closely while others are set a few inches apart. Separating them in this way a few inches apart avoids all joints except where they join the wall. All exposed surfaces inside and outside are glazed which adds to the attractiveness of the fixture.

Up to this time, about 1904, no attention had been given to the demand for long urinal-troughs and gutters for schools, factory, and government purposes. They had been made for a long time in iron but no one attempted



First Type of American Lavatories.

them in crockery except in 2-ft. sections joined together by cement and other means. For sanitary reasons, when made in this way, they were more or less defective. To avoid this warranted objection 4-ft. and 6-ft. sections were attempted. The troughs used for school and other purposes were made in 4-ft. lengths and where greater lengths were needed two of these parts were set up and joined to each other with individual plumbing. These troughs were made with extending lips and set on iron frames 18 in. from the floor-level.

The gutters made principally for government use were installed by setting in a cement bed a little below the floor-level, and where they formerly were made, as previously stated, in 2-ft. sections and joined with cement they were now made in 6-ft. lengths, each section complete in itself, and where 12 or more foot-lengths were needed they were made connecting by means of a brass connection which locked the two sections together without the cement or other means. This was accepted as a decided improvement and many of these fixtures are now made in this way.

In the meantime the vitreous ware had so advanced that a urinal larger in size than those previously mentioned as being made of the vitreous composition was now attempted. Its success entailed many experiments covering a period of some two years before final success was attained. They are now manufactured successfully in quite large quantities.

Lavatories.

We shall now turn our attention to the lavatories. Lavatories like urinals and most pottery were first suggested by what was being accomplished in older countries. All these different lines of pottery had been perfected in England long before their introduction in this country. Yet while we primarily depended upon the older countries for instruction and incentive, strange to say, in all lines probably, except table and art-ware, have we far surpassed them both from a standpoint of sanitary perfectness and adaptability as well as in neatness of design. Our first American lavatories were copies of those made by Messrs. Shanks & Co., Thos. Twilford & Co. and others of England. They were first made in 1881 by Thos. Maddock & Sons, Trenton, N. J., and were composed of an earthenware composition highly absorbent as were our first urinals. Only small sizes were attempted. Later these small lavatories were taken up by other firms but for a number of years nothing serious in the lavatory line was attempted. In May of the year 1895 the Keystone Pottery Co., Trenton, successfully manufactured what might rightfully be considered the first large lavatory of vitreous composition, followed closely by one made by the Trenton Potteries Co., in 1897. These Keystone lavatories consisted of an oval slab and basin, size 32¾x23¾ in., supported by metal legs and braces. They were made principally for the Dalton & Ingersoll Co., Boston, Mass., being advertised by them and shown in their various catalogs.

It appears that outside of these large lavatories together with the first small lavatories of English design, such as were first made by the Thos. Maddock & Sons Co., nothing more was done by the Keystone or Trenton Potteries companies until 1899, when a full line of lavatories was started by the Keystone Pottery Co. In the meantime, however, the Trenton Fire Clay & Porcelain Co., of Trenton, N. J., began manufacturing their fireclay lavatories, which have since been so extensively used. The present 2-bowl or combination lavatory was then designed and it was made in one piece. These lavatories began with the 24-in. size with a 15x12-in. basin and 6-in. apron running all around the lavatory and were supported by metal legs and braces.

While the vitreous lavatory was of slow growth, owing to the absence of successful methods of manufacture, the fireclay lavatory was of exceedingly rapid growth. Improvements followed so closely upon each other that these lavatories quickly grew in size from the small 24-in. lavatory to the combination lavatory which is 4 ft. long. Shortly after their introduction by the Trenton Fire Clay & Porcelain Co., they were taken up by the Trenton Potteries Co., who had been successful in manufacturing fireclay porcelain for some time, and later by the Monument Pottery Co., all of Trenton, N. J. The writer knows of no branch of the pottery industry which experienced so rapid and so healthy a growth as the fireclay porcelain enjoyed. Launched successfully by the Trenton Potteries Co., in the year 1893, it grew steadily into favor until by the year 1899 the product was being landed in England and Scotland, the place of its birth, and sold there cheaper than it could be manufactured at home. This was not accomplished without the difficulties usually attendant upon the introduction of a new and untried product. It was only after large experience and its accompanying expense that the proper materials for their manufacture was found, and the proper kilns in which to fire them. Until the year 1893 all this ware had been imported from England and Scotland, the principal importers being the J. L. Mott Iron Works, which became interested in the Trenton Fire Clay & Porcelain Co., shortly after its foundation by O. O. Bowman & Sons, Trenton, N. J.

It will be noticed that while the first fireclay lavatory was made in 1895, the same as the first vitreous lavatory, its growth was steady and continuous while the vitreous lavatory experienced but little advancement during the years between 1881, the date of the first lavatory, until 1898. As previously stated, this was due partly to the absence of a proper mode of construction and partly to the indifference of its possibilities on the part of the manufacturer. In the year 1898, however, the Sanitary Earth-

enware Specialty Co., an enterprising firm of Trenton, N. J., began seriously to experiment in vitreous lavatories. They were the first to adopt the English method of web-construction in lavatories. Results, however, were slow, but, in 1900, primary defects had been overcome and the vitreous lavatory was made successful, until now they are manufactured in large numbers by different firms reaching over a wide field of trade.

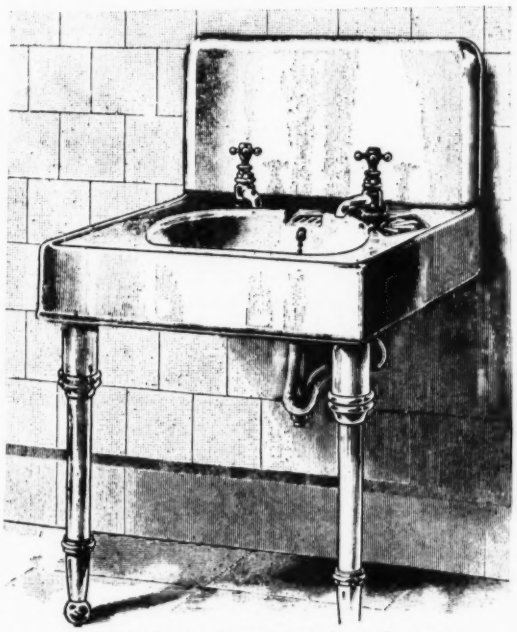
To those whose knowledge does not permit us to fully appreciate the difficulties attendant upon the production of heavy vitreous ware, we might explain some of the conditions we are compelled to meet, whereby it may be seen why it is not always possible to successfully meet the esthetic tastes of some of our patrons.

Clays.

Clay and quartz rock are the foundation of all pottery work. They are formed by nature in various ways probably not necessary to cite here. They vary not only in color but in composition. The potter selects what his science and experience teaches him is best for his body composition, and by repeated empirical tests fits to it a suitable glazed surface.

Composition.

This important essential, once successfully accomplished, one would think required but care in compounding the materials to continue its success; but since the character of the materials vary so widely from time to time, though secured from the same source of supply, the skill, experience and attention of the potter is always employed in



First Fire Clay Lavatories Made in the U. S.

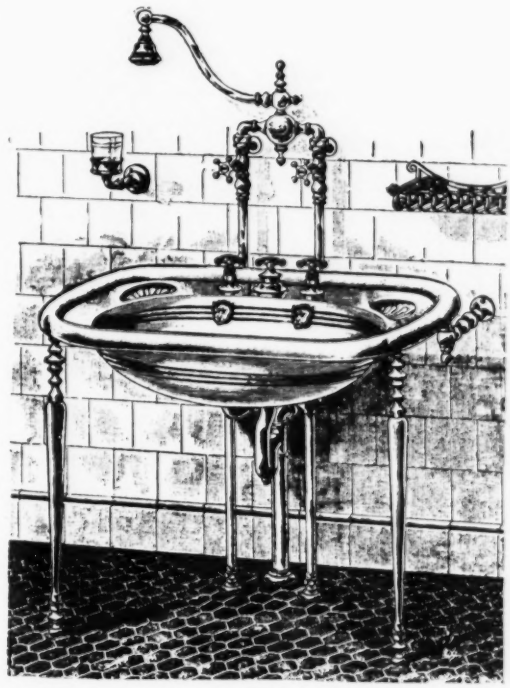
detecting these changes that misfortune may be avoided. In this, unfortunately, he is not always successful.

Drying.

The first step in the manufacture of successful pottery therefore, is found to have its difficulties, but not alone in this early stage, nor while the ware is still in its clay or undried state, but while in drying it is subjected to conditions which are not nor can be always under control. Changes of temperature in the work-shop, changes of seasons, etc., influence the work to a great degree. After this preliminary drying which usually takes place in the shop where the pieces are constructed, comes the heat-drying. In rooms especially adapted they are subjected to from 100 to 150 deg. of temperature for from 1 to 3 weeks, according to the size of the pieces to be dried.

Firing.

Those pieces which have successfully passed these two periods of drying are then ready for the kiln. This is one of the most delicate and difficult operations the potter is called upon to perform. However perfect the ware may be, up to this point it may be totally ruined by any one of the many causes with which the operator is familiar,



First Large Vitreous Lavatories Made in the United States.

but is not always able to control. Unless the temperature be exceedingly slow and steady at the beginning of the firing, unless the temperature be evenly distributed throughout the kiln, unless the temperature reached be high enough and not too high, disaster will result; not to speak of many lesser evils which contribute to that result.

We desire in our work to reach, as nearly as possible, that point of perfection which will enable our product to successfully pass critical examination. Consideration on the part of the inspector, however, should be given to the size, shape, and difficulty of the pieces examined, for perfection is impossible in pottery, as it probably is in many other lines of human endeavor. Upon the inspector and the sanitary engineer we largely depend for the sanitary perfectness of our product. It is necessary that we have your assistance and co-operation in this technical part of the work, for the potter in perfecting the quality has burdens quite equal to his strength.

In closing up this short historical note on the subject "Lavatories and Urinals—First Types" we regret our inability to place in the present list of successful manufacturers many of those, who like good soldiers in the front ranks of other battles went down in the struggle, but whose sacrifice was not without its influence on the work which we are doing today.

QUESTIONS AND ANSWERS

AN UNSATISFACTORY WATER-SUPPLY JOB.

Editor "Domestic Engineering":—Herewith you will find a sketch of a water-supply job (Fig. 1) in the country. The water supply is taken from a point which is at least five feet higher than the outlet in the bath-room on the second floor. We have a heavy cold-water pressure

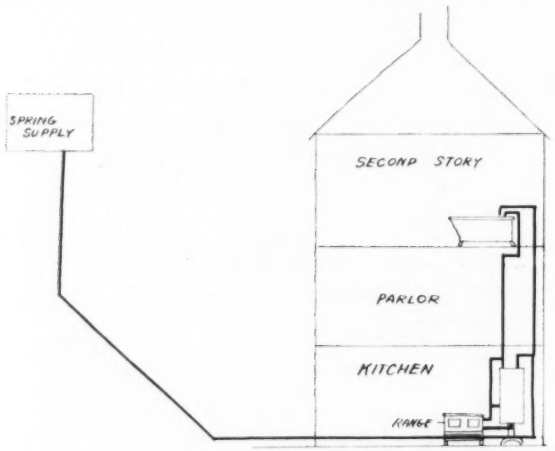


Fig. 1.—Sketch of Water-Supply Job, Which Does Not Work Right.

at all the fixtures, but hardly any or none at all in the hot-water supply-pipes. I would like to have some of your readers tell me why the hot water will not go as high as the cold water when cold and hot-water pipes are supplied from the same source. F. R. B.

New York, N. Y.

ESTIMATING OVERHEAD HEATING.

Editor "Domestic Engineering":—When you are figuring the amount of radiation on a hot-water job and are going to put it in on the overhead system and have a building that is more than two stories high, would you figure all the floors alike or would you make different allowances for the different floors?

I should like to get your idea and also hear from some of the different readers on this question.

Louisville, Ky. G. H.

We do not think that we should figure all the floors on the same basis. For instance on an overhead system the hottest water goes directly to the top floor. We should consider that the floor at the top would lose the heat faster on account of its exposed position under the roof and its altitude, and therefore make an extra allowance to cover that condition. The bottom or ground floor would need an extra amount of radiation as the water when it arrives at that point is at a cooler temperature than when it strikes the top floor.

The exact basis for figuring would, of course, depend upon several points such as the exposure, the altitude, the part of the country that the building was located in, and the construction of the building. These points would have to be taken into consideration in making the estimate.

MAKE USE OF THE EXHAUST STEAM.

Editor "Domestic Engineering":—I have a small factory and from the boiler room each day there is considerable exhaust steam that is not at present used in any manner. Not enough to heat the building, but I believe that it could be used to advantage. Perhaps you or some of the readers of your paper could give me a suggestion, which would be helpful.

Atlanta, Ga. S. L.

If our friend does not have any hot water for the men to use, when they so desire at noon and when they leave the factory at night, we should think that he would put a steam coil in a water tank and make use of the exhaust steam in heating the water for the use of the employees. It would not matter whether the tank was a horizontal or a vertical tank so long as it accomplished the result.

In this manner a large amount of hot water would be on tap during the day at no cost whatever, as our friend states that the steam is now wasted, and the men would have a better chance to clean themselves up and go forth both feeling and looking better.

The expense would be trifling when compared with the benefits received, and the first cost would be about all that would have to be considered. Think it over a bit, friend "S. L.", and decide to give your "help" a little more comfort in case they need it.

COMMENTS REQUESTED.

Editor "Domestic Engineering":—I am sending you a rough sketch of an installation (Fig. 2) which I wish you

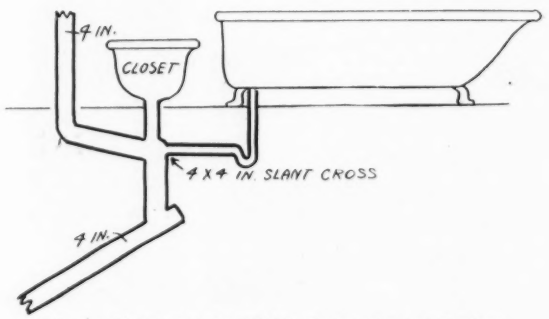


Fig. 2.—Shows Job on Which Comments are Desired.

would publish and ask for comments from some of your many readers.

Clinton, Ia. Subscriber.

WANTS HOT WATER ALL THE TIME.

Editor "Domestic Engineering":—Can there be a circulating pipe attached to bath-room fixtures on the same floor as the range-boiler that will keep the water in the pipes hot all the time? The range-boiler is attached to the range on a level with the fixtures and the pipes are run under

the floor to the different fixtures. If this can be done, how will it be necessary to run this pipe and what size?

Unionport, O. J. M.

We would suggest from the general data given that the hot-water pipe should be extended vertically from 6 to 8 ft. in order to get head enough, so to speak, to force the circulation.

HOW TO CONSTRUCT A SMALL SEPTIC TANK.

Editor "Domestic Engineering":—We have in mind that several months ago an issue of "Domestic Engineering" contained a descriptive article with diagram showing the construction of small septic tanks and sewage-disposal systems.

We are not able to find that number in our files and wish you would kindly mail us a copy of that date if you have one, and oblige. Yours very truly,

Omaha, Neb. J. C. Bixby & Son Co.

We have had so many requests for this particular issue that we cannot spare a single copy of it, and as we this week have had three other requests for this information, we feel that we can serve our readers best by republishing the article in question:

In that excellent work, "Sewage Purification and Sewage Disposal," by J. J. Cosgrove, an up-to-date septic tank is described as follows: In the sketch (Fig. 3) *a* is the wall which divides the tank into two compartments, of which *b* is the tank proper; *c* represents the collecting

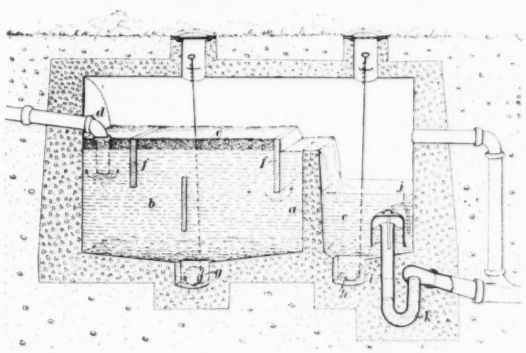


Fig. 3. A Properly Constructed Septic Tank.

and discharging chamber; *d* is the point from which the sewage enters the tank. It will be noticed that this pipe turns down and is submerged, which is to prevent the sewage from disturbing the scum upon the surface, represented by letter *e*. One of the baffle boards, *f*, deflects the flow of sewage towards the bottom of the tank, while the other, which extends down about three feet below the surface of the liquid, prevents the surface scum from being washed over with the effluent and insures the discharge from the tank being taken from near the center level, where the sewage is most clear. When baffle-boards are used they should be spaced about ten feet apart. The board nearest the inlet should project a few inches above the line of flow and to within two and one-half feet of the bottom of the tank.

The middle board should be set with its upper edge about 18 in. below the surface and its lower edge some 18 in. above the bottom of the tank. The scum board near the outlet should extend a few inches above high water level, and the bottom edge should be midway between the surface of sewage and the bottom of the tank.

A valved sludge-pipe, *g*, provides the means for draining off sludge from the tank without putting the tank out of service. It will be observed that the floor of the tank slopes toward this outlet. When the effluent is discharged into a stream, the tank *c* may be omitted. When the effluent is treated by filtration, as effluents should invariably be, the dosing chamber *c* should be so proportioned to the filter-beds that one dose will properly flood the filter area. The floor of the dosing chamber is made sloping towards the center, where is located the valved outlet, *h*, which should be cross-connected to the discharge to the filter beds, and to a sewer outfall, so that the effluent can be discharged direct at the place of disposal, or supplied continuously to the filter-beds during repairs to the automatic siphon. The wall which separates the dosing chamber and the septic compartments should be made sufficiently strong to hold back the liquid in the septic tank and to withstand the varying strains caused by slowly filling and quickly emptying the dosing compartment.

The siphon apparatus shown operates as follows: When sewage overflows the wall, *a*, into the dosing chamber it rises in the bell of the siphon and overflows into the trap, which it seals, thus confining the air in the space, *i*, which forms the long leg of the siphon. As the sewage effluent then rises in the dosing chamber it compresses the confined air in the long leg, thus forcing the water down on one side and up on the other, as shown in the illustration, until the compressed air in *i* is just about to escape under the bend that forms the dip of the trap. Any further flow of liquid into the dosing chamber will then compress the water in *i* so that the confined air can escape from the trap, carrying with it some of the water; as the air escapes from *i* the space fills with water from the dosing chamber, thus filling the long leg of the siphon, which at once is thrown into operation and aspirates the contents from the dosing chamber. When the effluent in the dosing chamber is lowered to the level of the mouth of the air pipe, *j*, the siphonage is slowly broken by the admission of air through the pipe. Besides serving as a vent to break the siphon, *j*, permits the air to escape from the space, *i*, when sewage is flowing in to fill the dip of the trap.

The depth of liquid in the dosing chamber, that will cause the automatic siphon to discharge, depends on and can be gaged by the depth of water in the short leg, *k*, of the trap. An overflow pipe is provided to carry off the effluent in case that the siphon becomes obstructed. This overflow pipe serves also as a vent-pipe through which air can circulate from the outlets at the filter-beds or other place of disposal up to and through the perforated covers of the manholes.

JOTTINGS FROM EAST AND WEST.

The Moore Heating & Mfg. Co., Akron, O., has increased its capital stock from $10,000 to $200,000.

Frank Warner, Syracuse, Neb., has sold his plumbing business and stock to Fallers, Seymour & Joyce.

E. C. Wonderlich, Boone, Ia., has sold his plumbing business to the Globe Plumbing & Heating Co., Des Moines, Ia.

J. H. Mulrein, Prescott, Ariz., has been awarded the plumbing contract for the new National Bank of Arizona, in that city.

Malone & O'Rourke, Little Falls, N. Y., have secured the contract for the plumbing installation in the residences to be erected by Dr. Terry on Monroe St., and Dr. Hough, on Gansevoort St.

M'Lean & Consens Co., Boston, Mass., has been incorporated with a capital of $50,000 to conduct a heating and steam-fitting business. The officers of the company are: President, J. D. M'Lean, Somerville; treasurer and secretary, W. S. Consens, Boston.

The Cost of Conducting a Plumbing Business

By V. R. Donovan, Brockton, Mass.*

About ten days ago I received a letter from the Chairman of the Essay Committee, requesting me to prepare and read an essay before this convention. Of course, you will readily see that this is pretty short notice, and my position at this time reminds me of the story of the traveling saelsman who was visiting the trade in the South.

This salesman struck one of those numerous small towns in the South containing but one hotel, and so was forced to put up there, whether he liked the accommodations or not. In the morning, as he was about to depart, he called for his bill; and in payment for same tendered the surprised landlord a twenty-dollar bill, which the latter could not break. The salesman had no smaller bills, so he kindly consented to step out and see if he could not get the money changed.

He tried to get the bill changed in several places, but without success. At last he met an old darky; and, as a forlorn hope, he determined to ask the negro if he could break the bill, so he stepped up to the old man, slapped him on the back and said: "Uncle, will you do me a favor?" "Yes, sah, if I can." "Well, then will you break a twenty-dollar bill for me?" The old man grinned, scratched his head, and said: "Indeed, sah, Ah appreciate de compliment, but Ah can't do it." So I am placed in a somewhat similar position to that of the old darkey.

Although the notice was very short in which to prepare an essay, I jotted down a few brief notes coming under my observation in the pursuance of the business, which I hope will be of interest to the delegates present, and from which a point or two may be gleaned by our members, and enlarged upon at some future meeting of their respective branches.

The first paragraph in the pamphlet gotten out by this association, under the heading "Objects of the National Association of Master Plumbers," contains the following:

"In this day, it seems hardly necessary to attempt to convince anyone of the need or advantage of such an organization as ours."

Very true; but we fall far short of our full duty unless we carry to its ultimate the various suggestions advanced by the special committees appointed from time to time. Our conventions are great educational factors in the business life of each member present. They help to broaden the views on all subjects discussed, and very often go so far as to have a monetary value for those of us who follow along the lines as laid down in the different papers.

Loyalty to the association is the first duty of every member, and in what better manner can we show that loyalty than by pointing out the road that leads away from failure and bankruptcy? This I will attempt to do in this paper. To give the proper method of arriving at cost of doing business, and what should be properly included in that cost, is to my mind of the highest consideration.

First and foremost, you must have an office system. You must know what comes into your shop, and what goes out. To do that a record must be kept, either in duplicate or triplicate. No order for goods from your supply house should be written on a sheet of your regular stationery, but it should be made out on the regular forms, which can be purchased at any stationery store. The book carried by the traveling salesman will answer every purpose. This order being made in duplicate, the original will be sent to the supply house, and the copy filed away until the goods arrive, when they will be checked up from this copy to see that they correspond in every particular. If not, then a note of the changes should be made in a book kept for that purpose alone. Should the copy of the order and the goods, as received, tally, then the copy is transferred to a book or loose-leaf ledger, called the stock-book. That part is now finished.

When any material is wanted, whether it be for jobbing or a contract, a requisition blank, also made out in duplicate, is obtained at the office and taken to the stock-man or boy, as the size of the business warrants, and by him filled. He returns the requisition blank with his check on it, when it is transferred to the opposite side of the stock-book, in which the supply house order was entered. This stock-book, or loose-leaf ledger, having separate pages for each different article carried, shows you at a glance how much of any particular article you have on hand. Then again, a book or loose-leaf ledger or a card index should be kept for all quotations given you, and of prices paid for any article, so that there will never be any doubt as to where to purchase a certain article at the lowest possible cost.

Another book that is absolutely necessary is a contract-book, as distinguished from an estimate-book. An estimate-book in printed form can be purchased for 50 cents from "Domestic Engineering." The contract-book is a record of all the material taken out, and the labor and expense incurred in the performance of each job, due credit, of course, being given to all material returned. At the completion of each job a slip is made out, comprising the different totals, when it is now ready to be put through the ledger, closing in full that particular job in so far as the contract-book is concerned.

You may say, "All this takes too much time, and costs a lot of money"; but I venture to say that a six-dollar-a-week girl clerk, and a nine-dollar-a-week boy, can keep everything up to date for six men and three helpers, provided you understand book-keeping yourself, and will teach her the different details, except the trial balance, each month. Of course, if you don't understand book-keeping, you will probably be obliged to pay a young lady $12 or more per week; but even at that price it pays, and pays handsomely.

Now we come along to the most important thing in the business; namely, what comprises the bid you are going to submit on any job. You know by filling out your estimate sheet what material it will take, and the cost of same. You also know very nearly the time it will consume, together with certain other items, such as car-fares and freight. Provided you know what per cent it costs to do business (and that item, how to figure cost of doing business, will be touched upon further along in this paper), it would be manifestly unjust to yourself to simply say, "I will add 10 per cent to my cost of doing business, and add it to the total labor, merchandise, and small incidental expenses," because your cost of doing business is derived in part from your jobbing, and in a great many shops jobbing is the largest item of the business, together with the shop-sales.

Should you figure contracts that way, you will find you will receive more of a certain kind of jobs because of the low bid given, whereas certain other kinds of jobs you

*Essay read at the annual convention of the Massachusetts State Association of Master Plumbers, held in Boston, May 12, 1910.

will never be able to get for the very opposite reason, that of being too high. Two simple examples will illustrate my point; but before touching on that, let me say that expert accountants in our line, who have handled the affairs of hundreds of bankrupt plumbing firms in this country, tell us that in the average business of, say, $25,000 per year, it cost 40 per cent of the labor to keep the labor going; and I firmly believe they are right.

Take two lavatories of the same size, but of different quality, one costs $5, and the other costs $25. It takes practically the same labor to install, and the express or freight charges are the same, so we have the items reading thus: $5 for the lavoratory, $2.50 for labor, 75c for express; total, $8.25. On the other hand we have $25 for the lavatory, $3 for labor (and we allow $3 instead of $2.50 because we feel that the article is more valuable, and would entail a greater loss, if broken, than the less expensive lavatory), 75c for freight (same as before), making a total of $28.75.

Now, a great many firms figure to add 20 per cent to these totals, and that constitutes their bid. I claim this is totally wrong, as we shall see: 20 per cent of $8.25 is $1.65, added to $8.25 makes $9.90; 20 per cent of $28.75 is $5.75, added to 28.75 makes a total of $34.50. Now, then, we will take the other way: That is, by adding 50 per cent for the labor, and then adding 10 per cent to the total for our profit, and we have the two examples reading thus: $5 for the lavatory, $2.50 for labor, 40 per cent of the labor is $1, 75c for the express, making a total of $9.25; and the 10 per cent for our profit to be added, which is 92c, making a total of $10.17. On the other hand, $25 for the lavatory, $3 for labor, 75c for express, and 40 per cent of the labor, or 1.20 for general expense, making a total of $29.25; 10 per cent for our profit, $3, makes a total of $32.95.

You may not be able to catch all this, but the totals in one case were $9.90 and $10.17; in the other case the totals were $34.50 and $32.95, showing that a person could obtain one job because he was too low, whereas in the other case he would have lost the job, because he was too high.

This can be tested on larger jobs; as, for instance, a $10 and a $100 lavatory, also a $100 and a $500 bathroom. In each case you will find that by figuring 40 per cent of the labor, as expounded by the expert accountants, will bring you out correctly in each case, whereas in the other cases, that of adding 20 per cent of the totals, you are either too high or too low. If too high, you will lose the job; if too low, you are on the sure road to bankruptcy, if you continue along that line.

Here are three actual contracts, as taken from my journal, which we will designate as examples A, B and C.

Example A: Contract price $85, labor $17.40, merchandise $50.45, expense $1.60, general expense, which is 40 per cent of the labor, $6.96, making a total of $76.41, the entire cost to carry out that job, subtracted from the contract price of $85, leaves a net gain of $8.59, which is 10 per cent for profit.

Example B: Contract price $163, labor $20.70, merchandise $115.20, expense $2.10, general expense, or 40 per cent of the labor, $8.28, making a total of $146.28, subtracted from the contract price, $163, leaves a balance for gain of $16.72, which, as you see, is 10 per cent for profit.

Example C: Contract price $531, labor $85, merchandise $350.16, expense $7.90, general expense, or 40 per cent of the labor, $34, making a total of $477.06, subtracted from the contract price, $531, leaves a balance for gain of $53.94, which is 10 per cent for profit.

And now we come to the method of figuring the right percentage, and I cannot explain it more clearly than it is expressed in an article that came under my notice, published in one of the leading journals of the country. I take the liberty of quoting the article in full:

The most important problem is encountered when the merchant sets about the computation of his profits. This is a rock on which many mercantile ships are wrecked. One careless merchant who was doing business under heavy expense—he estimated it to be 25 per cent—thought he was breaking even on some of his advertised lines, when he sold them at a profit of 25 per cent above delivered cost—that is, actual cost plus freight. One day the sheriff took possession of his store, and it took an expert accountant three whole hours to demonstrate to Mr. Merchant that he had actually lost 5 per cent on these lines, because he didn't know how to figure profits. And the surprising fact has now developed that many merchants have been for many years figuring their profits upon the wrong basis. If one were to figure his cost of doing business on his gross sales, and his percentage of profit on the price paid for merchandise—as many merchants are now doing—he would be dead-wrong.

If an article costs $1 and is sold for 25 per cent more than it costs, or $1.25, and the cost for doing business is 25 per cent, the dealer has actually lost 5 per cent on the transaction.

If an article costs $1 and the dealer adds 43 per cent to its cost and sells it for $1.43, and the cost of doing business is 18 per cent, he has not made the difference between 18 and 43—or 25 per cent—not by any means. He has made just 12 per cent,—no more, no less.

Here is the problem: The dealer pays 96 cts. for an article and adds 4 cts. for freight, making a real cost of $1. As he has decided to make 43 per cent his average gross profit, he will sell the article for $1.43. Now, his cost of doing business is 18 per cent; therefore he must charge 18 per cent of his selling price against the cost of the article. He would not take 18 per cent of $1, for then he would be figuring his expenses from cost—and as already stated his original 18 per cent is derived from the total sales, which is the sum of the selling prices. All percentages must be figured from the same data. The percentages of gross and net profit and the percentage of expense must be figured from the selling price; 18 per cents of $1.43 is 26 cts. It therefore costs 26 cts. to sell this article. The actual cost then to the dealer is $1.26. As the articles are sold for $1.43, there is made the difference between $1.43 and $1.26, which is 17 cts. This represents the actual profit in cents. Right here is where one is apt to go wrong, where many experienced merchants do go wrong. They assume, because they have made 17 cts. on an investment of $1, that they have made 17 per cent. But they are wrong. If the cost of doing business is figured from the selling price—which it must be—the profit, both gross and net, must be derived from the same figure, the selling price, else the cash on hand and books won't tally. The actual investment, so far as profits are concerned, is not what has been paid for the goods, but what the goods can be sold for. Therefore profits must be figured from the selling price. Since 17 cts. will be netted on this sale of $1.43, there will actually be made 12 per cent net,—no more, no less. 43 per cent on delivered cost, or 30 per cent on sales mean exactly the same thing. 43 per cent of $1 is 43 cts. 30 per cent of $1.43 is 43 cts. But as the dealer must start to figure from his delivered cost he must add 43 per cent to this cost to make 12 per cent—providing his expense is 18 per cent.

Many merchants figure that if they want to make 12 per cent net and their expenses is 18 per cent, all they have to do is to add 12 per cent plus 18 per cent (or 30 per cent) to the cost and sell the article for $1.30. This is where the mistake arises. The merchant who buys an article for $1 and sells it for $1.30, and whose expenses run 18 per cent, makes only 5 per cent, not 12 per cent. 18 per cent of $1.30 is 23½ cts. Therefore the total cost is $1.23½, and the actual profit is 6½ cts.

MARK TWAIN AND HIS PLUMBING.

The death of Mark Twain recently has stirred the humor-loving peoples of the world to the depths. Connected with the many reviews of his unique career have been published hundreds of anecdotes of more or less truth. Mr. Twain in his journeyings dabbled in everything and it is quite in order at the present time for us to publish a well-authenticated story concerning an experience which occurred to this prince of humorists in connection with his house-plumbing. This time, however, it is a joke on the prince. It was published first, we believe, about 20 years ago in the "Boston Globe" and as it has not been repeated we can be pardoned in presenting it for the enjoyment of our readers at the present time.

Most readers of Twain history have heard of that house on Farmington avenue, in Hartford, so peculiar and picturesque that tourists went to see it aside from the interest attaching to the home of the great American author. It was called a combination of Mark Twain and Queen Anne architecture, and was a most attractive and comfortable domicile.

Once, when Mark Twain (Mr. Clemens) was absent for several months from home, Mrs. Clemens—who was a lady of quiet tastes and a devoted mother—thought she perceived that her little girls were ailing. Filled with quick alarm, she sent for the family physician, who, a prominent practitioner, had a large size bee in his bonnet, which was named "sewer-gas." He told the lady that her darlings were doubtless suffering from malarial troubles induced by imperfect drainage, and that the plumbing of the house was defective and out of repair. She was much alarmed and in a sad quandary in her husband's absence, the more so as she knew he had taken great pains to secure perfect sanitation in the household arrangements. Sending for a plumber (of course the rival of a man who had put in the pipes) she asked him to make an examination. The good man was horror-stricken at the condition in which he said he found things. He condemned the whole system, and was given the contract to tear out and replace the plumbing and make secure the safety of the inmates of the house. Of course the expense was enormous, but the doctor said it was justifiable, and was righteously indignant at the man who did the job.

About the time the change was completed, Clemens arrived home and she flew into his arms with an account of their narrow escape from illness and perhaps death. It was then that the funny man arose in his wrath, and the manner in which he cursed sewer-gas, doctor and plumber was said to have been an education in the comprehensive possibilities of the English language. The fact was, that in order to avoid possible danger he had made his house to drain into the river that passed below his grounds, the pipes were not connected with any sewer, and the really fine work of the best plumber in town had been torn out and far poorer work put in, to ease the fond fears of a loving mother, carry out the whim of a scientific physician, and add some $1,500 to the pile of a competing plumber.

PHOENIX PLUMBERS WANT LAW TRANSLATED.

The city fathers and the master plumbers of Phoenix, Ariz., held a meeting last week for the purpose of solving the problem of translating the plumbing ordinance into such language that it can be readily understood. Every plumber in the city was present. Building Inspector Jim Creighton and City Attorney Tom Prescott were also on deck. The plumbers wanted to know what the ordinance relating to plumbing really means. They asked Creighton what it meant and he admitted he didn't know and asked the council for an interpretation. He might as well have asked the policeman on his beat to make a spectral analysis of the gas in the comet's tail. The plumbers had disputed among themselves about the meaning of certain passages and words in the ordinance. J. H. Mulrane, who has the contract for the plumbing in the new bank building, thought it meant one thing, and Bill Evans and others thought it might mean something quite different.

The trouble among the plumbers began when Mulrane went to the building inspector for a permit to install the plumbing in the bank building. He was asked the usual question, "Will you put in the plumbing according to the specifications of the ordinance?" and it is alleged that he said he wouldn't. He said the ordinance called for inferior plumbing in one place at least, and he did only first-class work. Thereupon the permit was refused. It is said that Mulrane went ahead and put in some of the plumbing anyway. It is the first four-story building erected in Phoenix for some time, and the ordinance did not seem to prescribe adequately for the case.

There was the question of whether the ordinance prescribed "extra heavy" or "standard" weight for waste pipes and soil pipes. In such a building as the bank this meant a difference of quite a few hundred dollars, besides setting a precedent for all other four-story buildings. There were many minor details about "Y's" and "quarter bends" on which the ordinance was vague and nebulous. The plumbers went to Inspector Creighton, but he coyly slipped out of the dilemma by suggesting that they go before the council with their riddles.

Creighton asked that the ordinance be amended and translated; that the duties of the inspector be defined and that provision be made for a commission to consist of the inspector and a councilman with the assistance of a plumber, when needed to untangle abstruse problems. The council will take up the matter of the amendment at a meeting to be held in the near future.

CONNECTICUT.

The W. P. Kirk Co., has been given the contract for the plumbing and metal work on the new building which is being erected for the Locomobile Company of America, Bridgeport, Conn.

Joseph Devine has opened a plumbing shop in Garragus' Block, Thomaston Ave., Waterville, Conn. Mr. Devine hails from Waterbury, and his new shop is the only one of its kind in the village of Waterville.

Henry G. Johnson, New Canaan, Conn., has associated himself with his brother, Walter R. Johnson, in the plumbing and tinning business in that town, and the firm name will hereafter be W. R. Johnson & Co.

William Simon, plumber, New Canaan, Conn., reports many plumbing contracts on hand. He is doing the plumbing in the residence of Mrs. Mary Clarke, plumbing in the Bush house and has the contract for installing two bath-rooms in the residence of E. G. Whritmour on East Avenue; also the installing of a bath-room in Mrs. L. Buttery's house.

The A. C. Schirmer Plumbing Co., Chisholm, Minn., has moved its establishment to the Miners' State Bank Bldg., in that city.

Tentative plans have been made for the new central heating plant at the University of Minnesota. The legislature has appropriated $150,000 which will be used for the erection of a one-story brick building and its equipment with boilers, stack, piping and other apparatus. Tunnels for conveying the heating pipes from the central plant which will be on the river bank, to the other buildings on the campus will be constructed with a total length of three-quarters of a mile. Dean Francis C. Shenehon of the engineering department has charge of the matter.

Among the Wholesalers

INCREASES CAPITAL STOCK.

The Osborne High Pressure Joint & Valve Co., Chicago, has increased its capital stock from $150,000 to $200,000, certificate to this effect having just been filed with the secretary of state.

WILL REMAIN IN ITS PRESENT QUARTERS FOR SOME TIME.

Crane Co. will occupy its present quarters at Oakland, Cal., for some time yet, but it will not be long before construction work on the new building planned in that city will be commenced.

WILL MAKE HEATING AND PLUMBING SPECIALTIES.

Aetna Heating & Ventilating Co., New York, N. Y., has been incorporated with a capital of $50,000 to manufacture plumbing and steam-heating specialties. The incorporators are: E. Glantzberg, A. Nelson, New York City; C. Klander, Chelsea, Mass.

WILL ERECT LARGE ADDITION TO ITS PLANT.

The Warner & Swasey Co., Cleveland, O., will soon begin the erection of a large addition to its plant, about 50 x 200 ft.,four stories. The erection of this extension will be the carrying out of plans for a large main building that were laid out when the present main factory building was built. An old section of the plant will be torn down and replaced with a handsome brick structure that will conform with and be an extension to the present main building.

"KEEP AN EYE ON YOUR OFFICE STATIONERY!"

Two men are under arrest in Philadelphia charged with having obtained metal and plumbing supplies from jobbing houses. The swindlers worked with forged orders, purporting to have been made out by reputable builders, master plumbers, etc., and the police are at loss to know how they secured stamps, orders, etc. "Keep your eye on your office stationery, stamps, etc.," is their advice to the trade. The swindlers, after securing the supplies, sold them to "fences" and junk dealers. Their game, however, was nipped in the bud and some of the goods were recovered.

WALTER EDMUND HEG DEAD.

Walter Edmund Heg, general manager of the Automatic Heating Company, died on Sunday, May 15th, at his residence in Chicago, after a brief illness from quinsy. He had been located in Chicago only since the first of January, but had previously been local manager of the company's offices at Rochester, N. Y., Baltimore and Philadelphia, in each of which cities he was very successful and obtained the regard and friendship of all with whom he came in contact. He was born June 10, 1875, in Beloit, Wis. His early life was spent in Lake Geneva, Wis., where the burial took place. He is survived by his wife and one daughter, also his parents, brothers and sisters.

THE EASTERN TRADE GOLF ASSOCIATION'S SPRING TOURNAMENT.

The Eastern Trade Golf Association held its annual spring tournament on Tuesday, May 24th, on the links of Wykagyl Country Club at New Rochelle, N. Y. The event was favored with ideal weather for an event of this kind and the tournament was a most pleasant success.

The winner of the cup, presented by the American Radiator Co. for a match against Bogey, was P. H. Seward, with an allowance of 15 strokes handicap, who finished one up.

The winner of the first prize in the eighteen-hole handicap for a cup, presented by Jenkins Bros., was G. H. Chasmar with a net score of 84.

The winner of the second prize was E. C. Molby with a net 86.

The winner of the third prize was C. N. Brizse with a net 87.

The winner of the fourth prize was J. B. Garfield, a gold medal, who finished in 87 from scratch.

The winner of the fifth prize, a set of golf sticks, presented by Alex. Smith, the Wykagyl Country Club's professional, was Geo. F. Brown.

The four-ball foursome contest resulted in a tie between P. H. Seward and A. H. Pearson, with a net 82, and J. B. Garfield and H. S. Hadden, with an 82 from scratch, but as Mr. Garfield and Mr. Seward had already won prizes, the two silver medals went to their respective partners.

WILL DEAL IN PLUMBING SPECIALTIES.

North Adams Wholesale Co., North Adams, Mass., has been incorporated with a capital of $50,000, to deal in plumbing specialties. The officers of the new company are: President, Albert Franchers, North Adams; treasurer, Edward W. Streeter, Adams; secretary, Daniel Eldridge, North Adams.

ENTERTAINMENT FEATURES AT THE CHICAGO CONVENTION OF THE N. A. M. P. ANNOUNCED.

This year Chicago has the honor of entertaining the National Association of Master Plumbers at its 28th annual convention. The business sessions will be held in Orchestra Hall on Michigan Ave., overlooking the Lake Front. This is but two blocks distant from the Congress Hotel and Annex, where convention headquarters will be established. At this time the General Arrangement Committee is ready to announce the entertainment program, as follows:

Monday Evening, June 27th.—Reception to visiting delegates and friends at Congress Hotel.

Tuesday, June 28th.—Morning: Opening of Convention preceded by a march of delegates and members from Congress Hotel to Orchestra Hall. Afternoon: Ladies' sightseeing trip. Evening: Lake excursion on Steamer Theodore Roosevelt.

Wednesday, June 29th.—Afternoon: Ladies' luncheon in Florentine Room, Congress Hotel. Evening: Vaudeville entertainment, Orchestra Hall.

Thursday, June 30th.—Morning: Ladies' reception at Art Institute. Evening: Ball in Gold Room, Congress Hotel.

Friday, July 1st.—Morning: Automobile ride through parks and boulevards. Afternoon: Luncheon and entertainment, Riverview Park.

A partial resume of what the guests of the Chicago Local may expect in the way of entertainment bespeaks a royally good time for those master plumbers who will make the trip to Chicago the last week of June.

Monday evening's informal reception at convention headquarters, in the Congress Hotel and Annex, will give the delegates and their friends a chance to meet old acquaintances and renew friendships.

At 9:30 a. m. Tuesday, delegates and members assemble at the Congress Hotel and from there march to the Convention Hall in the Orchestra Building, two blocks to the north. Following the opening of the Convention by National President Walter D. Nolan, addresses of welcome and responses will be heard from prominent state and city officials noted for their oratorical powers. Upon entering this hall and climbing one flight of stairs, delegates and visitors will be surprised to find a most complete exhibit of plumbers' specialties and supplies. In the basement may be seen a display of heating apparatus and equipment, too heavy to be shown on the Mezzanine floor. The presence of electricity and water makes possible the actual demonstration of outfits.

While the business sessions are in progress, the visiting ladies will be entertained by the Ladies' Auxiliary of the Chicago association. For Tuesday afternoon a trip through the down-town shopping district has been planned. This will afford an opportunity for the ladies to make purchases and put in an afternoon of sight-seeing at the same time.

Tuesday evening a moonlight excursion on Lake Michigan will be made on the Steamer Theodore Roosevelt, one of the newest and finest pleasure boats on the lake. An excellent program will be given by a quartet and a sixteen-piece band specially engaged for the occasion. Refreshments will be served and everything done that is possible to make this an enjoyable outing.

On Wednesday afternoon the Ladies' Auxiliary will tender a reception to the visiting ladies in the Florentine Room of the Congress Hotel. Here an elaborate luncheon will be served. It is expectd that over 500 ladies will be present, the men not participating in this part of the program.

In Orchestra Hall on the evening of this day, delegates and other members with their friends are invited to a vaudeville entertainment. The program will be of a very high order and every number first-class.

Thursday morning the ladies will be received at the Art Institute, situated across Michigan Boulevard from the Convention Hall. Here an opportunity will be given of visiting the art galleries and statuary hall.

The crowning event comes on Thursday evening after the convention has completed its business sessions. This is the grand ball to be given in the luxurious Gold Room of the Congress Hotel. No doubt a couple of thousand persons will be present on this occasion.

The big feature of the program awaits those who remain over until Friday. In fact, nothing so stupendous in the way of an automobile parade has ever been attempted in Chicago. Fully 600 touring cars will be in line to make a circuit of the city's parks. A distance of nearly 50 miles, along beautiful boulevards and parkways will be traversed before the party alights at Riverview Park. This outing will give all visitors a most excellent view of Chicago's attractive park system besides conveying an idea of its extensiveness, as this trip takes in the south, west and north sides of the city. When the ride is over, dinner will be served at Riverview Park. This is an amusement ground of forty acres, well wooded and entertaining, because of the numerous concessions, the principal of which will be open to convention guests.

Out-of-town delegates and their ladies should arrange to remain in Chicago over July 4th, when the United States soldiers, brought here for the purpose, will give a military tournament on the Lake Front, outdoing anything of this kind that Chicago has yet witnessed.

New Trade Literature

McLeod & Henry Co., Troy, N. Y., appeals to the members of the plumbing and steam-fitting trades, who are users of firebrick, by the issuance of a descriptive catalog, explaining and illustrating the merits of the company's "Steel Mixture" firebrick. These firebrick are specially manufactured for boiler settings, are very refractory and have a high crushing strength. A noteworthy feature of the catalog is its excellent illustrations, showing application of the fire-box blocks in different types of boiler-door arches and chamber arches. The firebrick proper are supplied in all the standard forms from square brick to circle brick. In conjunction with the firebrick, the company also furnishes a special fireclay with which it can be successfully laid in position. Copy of this catalog can be obtained upon application to the company.

The Peerless Selling Co., Evansville, Ind., is sending to the trade useful order-books, containing conveniently printed blanks, designed to save time and trouble, to the customers for "Don't Worry" seats. The order-book also shows illustrations of the company's wood-working and sanitary-pottery plants. Following these, are illustrations and specifications of the leading lines of closet-combinations furnished by the company.

The Leader Iron Works, Decatur, Ill., wishes to state that you can read its catalog from cover to cover in 60 minutes. It represents the crystallized experience of many years, and should interest the prohibitionists as well as the plumber, because it deals with water. The Leader water system consists of one or more heavy air-tight cylindrical steel tanks and a special type of pump, arranged to be operated by hand or power. How this system operates, you can find out by writing for the catalog. This is printed in two colors, and shows the many adaptations of the Leader system. It is equally applicable to the costly residence and to the truck farm. Reading this catalog may offer you greater opportunities for the development of your business.

The Pfau Mfg. Co., Cincinnati, O., believes implicitly in the importance of its products. No materials can be too good for their construction and no medium can be of too excellent a quality for their presentation to the public. If you don't believe this, write at once for copies of the recent catalogs, issued by the company, describing the "New-Pfau" tanks and ball-cocks, and also the handsome supplement which is devoted to an exposition of the Pfau water-closet tanks and seats. If you do believe it, you will write anyhow as soon as you read this notice. It is certain that no up-to-date plumber can afford to be without these catalogs for consultation and selection.

NEW JERSEY JOTTINGS.

John Smith, master plumber, Gloucester City, has a large force of men at sewer-connection work, etc., on Brown and other streets.

During the past month Plumbing Inspector Henry B. Mines, of Camden, reports having made 63 first trap inspections, 36 tests and 33 final inspections. He found no fault with the work being done.

Several master plumbers at Gloucester City will be "called down" for neglecting to report new water spigots and connections. A number of householders have been enjoying free water and the water department does not like it.

A fund of $100,000, with which to erect a new homeopathic hospital is being raised in Camden and over $80,000 has already been secured. The master plumbers have given generous sums towards the project, as a rule, and so have the Phoenix Meter Co. and the A. J. Fullmer Co.

J. Myers & Co., heating contractors, have taken larger quarters at 429 Market St., Camden, in order to keep pace with increasing business.

The Water Committee of City Council, Camden, will receive proposals until June 15th for cast-iron pipe, valves, tapping machine, water meters, etc.

An actor at the Camden Theatre jacked up his job because there was hissing going on. It was a steam pipe which was doing it. If a play is so bad even the steam-pipes hiss what is the steam-fitter to do?

PLUMBERS WANT EXAMINING BOARD APPOINTED.

The master plumbers of San Antonio, Texas, have filed a petition with the city council asking it to see that steps are taken to comply with the state law, requiring all plumbers to be licensed. Although this law has been in effect many months, it has been entirely ignored by the city authorities of San Antonio, allowing, it is claimed, unskilled men and even boys to do plumbing work.

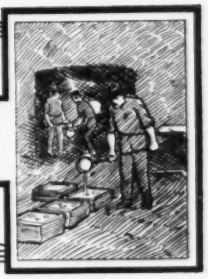
SECURES AN ADDITIONAL PLUMBING INSPECTOR.

The field work of the assistant inspectors of plumbing at Washington, D. C., has increased to such an extent as to overburden the present force in the plumbing division, and to relieve in a measure the present force, A. R. McGonegal, inspector of plumbing, has appointed Joseph Whelan as a temporary assistant. It is expected that Mr. Whalen will remain with the office for a good while, and it is hoped that he may be placed upon the permanent roll after the first of the next year.

John Douglas, president of the John Douglas Co., Cincinnati, Ohio, who for some time has been confined by illness to his home at Pleasant Ridge, near that city, is reported to be on the road to recovery and he expects to be out in a few weeks.

Consulting Engineer Manning, of Harrisburg, Pa., has been asked to prepare plans and specifications for the erection of a new public comfort station in that city.

THE METAL MARKET



SCATTERED BUYING OF PIG IRON.

Purchases of pig iron have been made by consumers in practically all of the leading markets. Some of these have been for round tonnages and in New York probably 50,000 tons have been sold during the week. In Cincinnati buyers have shown more disposition to enter the market, and the same is true in Cleveland and Birmingham. The Chicago market is somewhat dull. Consumers there complain they cannot get any of the very cheap buying from the South. Last week the minimum reported from Birmingham was $12 for second half delivery, but since then sales have been made at concessions from that figure. The general asking price now for delivery during the present quarter is $11.50 Birmingham. One of the leading manufacturers of plumbers' enameled goods has purchased for its Southern plant a respectable tonnage. Cast-iron pipe manufacturers are buying in fair amounts, but it is evident they have not fully covered their requirements.

To sum the situation up, it is admitted that buyers are on the lookout for bargains, and unless they can get what they consider low-priced iron, they are not willing to come into the market at all. One of the disturbing factors of the week has been the new low-level in which Bessemer pig-iron has fallen in Pittsburgh. This is disturbing from the steel maker's point of view, but coincident with this are the reports that the demand for steel shows an improvement. Stocks in the hands of local foundries are small and they are running on a hand-to-mouth basis. Prices are as follows:

No. 2 Southern foundry, Birmingham	$11.50 to $12.00
No. 2 Virginia foundry, New York	17.25 to 17.50
No. 2X Northern foundry, New York	17.00 to 17.25
No. 2 plain Northern foundry, New York	16.75 to 17.00
No. 2 Northern foundry, Chicago	17.00 to 17.50

PIG TIN IN LIMITED SUPPLY.

The consumptive demand has been considerably larger than last month, and a feature of the situation is the small shipments arriving from Europe. From the far East, too, the shipments are much smaller than expected, and while it is hoped they will improve during the coming month there is always the feeling at such times that a shortage may develop. The Banca sale, which was held last week in Amsterdam, Holland, went at a price equivalent to 33 cents c. i. f. New York, at the same time the price for spot tin New York was 33.35 cents, indicating a premium for tin in store. Shipments from dealers are so small that it is felt that the U. S. Steel Corporation, which has a large amount of tin in stock, is selling to consumers and shipping direct.

A CONFUSED COPPER MARKET.

An accurate diagnosis of the true conditions underlying the copper market grows more difficult week by week. Some of the largest buyers have formed a syndicate, it is reported, to purchase a round lot of copper. The price they were willing to pay was 12¾ cents, but the producers would not part with the quantity wanted, 100,000,000 lb., for less than 13 cents. This had some of the ear-marks of truth. In the first place, it sounds reasonable that producers would be unwilling to part with a round lot at that figure for if there is a demand for anything like that amount of copper, business in the finished line must be better than many people imagine. In the second place, a sale of such a quantity of metal would probably suffice for the requirements of the consumers for two or three months, and in the meantime prices might harden.

Business in the finished line is considerably better than last month. Exports to Europe, too, show an improvement, but are not sufficient to make any appreciable diminution in our unwieldy stocks. Sellers will part with electrolytic at 13 cents and buyers offer 12.75 cents. Lake has been sold at 13⅛ cents.

A BETTER DEMAND FOR LEAD.

The prices have advanced about 2½ points, and lead is moving more freely than at any time during the last six weeks. The manufacturers of cables have been active in buying lead. Spot shipments are offered at 4.37½ cents New York.

SPELTER.

There is an amount of spelter over-hanging the market, which makes it impossible to advance quotations. The largest dealers are unwilling to sell at present prices, but apparently their only recourse must be to curtail production until the demand improves. The New York market is lower, at 5.30 cents, and in St. Louis 5.15 is quoted.

OLD IRON.

Business continues exceedingly dull. Holders of scrap are unwilling to part with it at lower figures than those quoted below, which in the absence of business must be considered more or less nominal. These nominal prices per gross ton New York are as follows:

No. 1 yard wrought, long	$12.50 to $13.00
No. 1 yard wrought, short	12.00 to 12.50
Machinery cast	12.50 to 13.00
Wrought pipes and tubes	12.00 to 12.50
Wrought turnings	8.00 to 8.50
Cast borings	7.00 to 7.50
Stove plate	9.50 to 10.00

ADVOCATES HANGING FOR PLUMBERS.

The Beaton & Bradley Co., New Britain, Conn., has recently published a small booklet bound in brilliant red, whose chief theme is "Hanging for Plumbers and Steam-Fitters." The company endeavors to preside over the execution of good work and perfect hangmanship, by introducing to the trade its different hanging devices. These include wrought steel pipe-hangers, strap-hangers, adjustable book hangers and the well-known "Jumbo" hanger, with its locking device of commendable simplicity. Of interest also to plumbers and steam-fitters are the company's floor and ceiling plates. These are constructed with inside ribs which serve the double purpose of affording a sufficient air-space between the plate and the pipe to prevent the transmission of heat and also to assist in centering the plate when in position on the pipe. These plates are finished either in black iron or they are nickel-plated. The nickel-plating is done on copper which gives a brilliant and lasting finish and is rust-proof. Further details concerning these products and the other lines manufactured by this company can be obtained by writing for the catalog. When you write mention "Domestic Engineering."

PHILADELPHIA AND VICINITY.

Talking of trade conditions, a jobber of plumbing supplies in Philadelphia said: "Neither master plumber nor journeyman is at this time recovered from the effect of the business depression of 1908 and 1909. During that period little money was made and more or less lost. While the building trades generally present an appearance of prosperity, this is hardly the case. Conditions are still variable and somewhat uncertain. Contracts taken, as a rule, are at about actual cost. It is not a time for workmen and mechanics to seek more wages. In all fairness they should wait until this time next year before expecting more wages."

"It is surprising how many plumbers and steam-fitters are being employed by automobile manufacturers," said a master steam-fitter. "It is an advantage to them, too, in that they are sure of steady employment the year around. There's lots of radiator and steam-fitting work about an automobile."

The following heating and plumbing contracts have recently been awarded: To V. E. Brown Heating Co.—J. C. Shedwick's house, Powelton avenue, $700; C. E. Smith's house, N. 19th St., $700. John H. Myers—Miss E. Fairies' dwelling N. 20th St., $400. Ralph Williams—Western Saving Fund building, Wallace street, $125. G. Walter Zahne & Bro.—Mrs. E. B. Smythe's dwelling, Broad St., $265. Francis Bros. & Jellett—E. H. Morris' dwelling, 54th St., $2,300; H. F. Bachman's store, Chestnut St., $750. Harry Drake—lavatory in Fern Rock Mills, Wishart St., $135. X. Joergen & Son—P. Hackett's place, McKean St., $325. E. Brown—Philadelphia Rapid Transit Co.'s freight station, N. Front St., $300. W. S. Smith & Co.—Mrs. A. Deaver's dwelling, N. 15th St., $5,000. R. S. Heckler—S. Supplee's dwelling, N. 13th St., $375. E. F. Shallow—T. McMahon's house, Ludlow St., $300. Britten & Witham—Dr. Schrein's dwelling, Maplewood Ave., $300. W. F. Rentschler & Bros.—Oscar Kind's dwelling, N. Park Ave., $100. H. L. Roberts—J. H. Davis' dwelling, Arch St., $1250; Eliza Brandt's house, Foulkrod St., $480. Edwin Brenner—Portable heater for John McCaughn, East Daughin St., $90. S. W. Barnes & Son—J. Goodstein's house, N. 10th St., $600. H. Sherman—J. Hassan's house, S. 10th St., $100.

The National Hartel Light Co., 3202-3204 Chestnut St., has added a registered plumber to its staff of employes. They report excellent business.

Dr. R. B. Owens, recently of Charlottle, N. C., has been appointed secretary of the Franklin Institute of Philadelphia. He succeeds Dr. Wahl, deceased. Dr. Owens is a professor of electrical and steam engineering, and has filled a number of important positions, as well as written a number of pamphlets, treatises, etc., on technical subjects. He comes from McGill University, where he was professor of engineering. The Franklin Institute, of which he is now secretary, prosecutes research work in scientific matters.

The movement to secure lower and more equitable rates of the express companies has been approved by the Merchants and Manufacturers' Association of Philadelphia, of which the following heating and plumbing supply firms have membership: John L. Gaumer Co., Hunter & Dickson Co., H. B. Smith Co., Haines, Jones & Cadbury Co., Isaac A. Sheppard & Co., Merchant & Evans Co. and Thos. J. Berkstresser & Co. Secretary Chas. W. Summerfield, of the local manufacturers' association is a member of the committee representing United States manufacturers that is working to secure a desired readjustment of express rates.

The Royal Ventilator and Manufacturing Co., 422 Locust St., is busy in the shops and has employed additional hands.

A resolution, passed by City Councils, authorizing the Finance Committee to investigate the management of the Philadelphia Bureau of Water, has been approved by Mayor John E. Reyburn. It is said the upkeep cost of the Bureau is getting to be greater than the revenue therefrom.

The delegation of master plumbers from this city who recently attended the State Association convention at Lancaster, Pa., report having had a pleasant and instructive time. They felt that they had been duly honored, too, in the way of office rewards: D. F. Durkin, Jr., being elected third vice-president, and Harry B. Lentz a delegate to the national convention at Chicago. Mr. Lentz will attend, and at Pittsburg will be joined by A. S. Whitehead, who is also a delegate.

Among plumbers who have received contract work recently in the Philadelphia and near-by district are: H. Beniston, Chester Ave., Norwood; Wm. E. Finnigan, Sharon Hill; Charles J. McCarthy, 4533 Wayne Ave.; M. Rohn, 812 South St., and G. K. Morris, N. Wales, Pa.

The local branch office of the J. L. Mott Iron Works is now located in the Bulletin Bldg., City Hall Square.

The Sees & Faber Co., Inc., manufacturers of plumbers' tools, report a betterment in trade, and the plant is running steadily, full time.

Shand & Lafaye, Washington St., Columbia, S. C., are in the market for heating plants. So also is John J. Carlin, 215 St. Paul St., Baltimore.

Isaac A. Sheppard & Co. have opened a Philadelphia office (and show rooms) at 139 North Eleventh St., in charge of Geo. W. Barr. The exhibit of heating boilers, etc., is attractive.

The Philadelphia branch office of the Monitor Steam Generator Mfg. Co. (of Landisville, Pa.) has been moved to 27 S. 18th St. C. F. Bachler is manager and reports increasing business in his district.

Thomas P. Moore, Reading, Pa., has secured the contract for the installation of the plumbing system in the new parish house of St. Mary's Catholic Church at Twelfth and Spruce Sts.

The Consolidated Plumbing Co., Knoxville, Tenn., has been incorporated with a capital of $7,000. The incorporators are: J. W. Weatherford, W. A. Stater, B. P. Cowell, Wm. Roddy, H. T. Humphrey, Wm. L. Stout and John T. Barry.

WILMINGTON MASTER PLUMBERS' SHAD-BAKE.

The Master Plumbers' Association, of Wilmington, Del., held its annual shad-bake on Thursday, May 19, at the Idle Hour Club at Grubb's Landing, and it was attended by nearly 200 members and guests. The latter were from Baltimore and Philadelphia and they reached the city about 10 o'clock in the morning and were met at the Pennsylvania railroad station by a committee consisting of E. P. McKay, George C. Hutton, William G. Robelen, John Wigglesworth and John Kramer. The visitors were at once taken to the club-house via trolley cars.

The club is an ideal place for such an affair and on that day the weather man vied with the plumbers in making it a pleasant one, for the gentle breeze under the shade of the large trees on the lawn of the club gave an incentive to the appetite.

A feature of the gathering was that side by side at the dinner table were Plumbing Inspector Potts of Baltimore and Plumbing Inspector Edward F. Kane of Wilmington.

Prior to the dinner a baseball game was played between the Wilmington and the Baltimore plumbers, which resulted in a score of 11 to 7 in favor of the Wilmington team. The batteries were Wigglesworth and Lenderman for Wilmington and Beltz and Brenniecke for Baltimore, with Harry F. Mellon as umpire. The morning was spent by those present in various diversions and it was nearly 2 o'clock when Caterer Zimmerman announced that the dinner was ready.

Besides the guests from out of the city there were also present Chief Engineer John A. Kienle of the Water Department, Secretary Leslie C. Christy of the Street and Sewer Department and First Assistant Harry L. Maier, of the city engineering department. During the dinner addresses were made by Plumbing Inspector Kane, who spoke on the apprenticeship of boys, and emphasized that they should be carefully trained. He was followed by John F. Traynor, of Baltimore, past president of the National Association of Master Plumbers, who took occasion to laud the late Alfred Gawthrop, who, he said, was the prime mover in the formation of the organization. Mr. Gawthrop served in the war with Mr. Traynor. The speaker said the association comprises prudent, discreet and government-loving people, who are banded together for the mutual benefit of employer and employees.

New England Notes

Mayor John F. Fitzgerald, of Boston, has approved a contract with Pierce & Cox for installing a plumbing system in the Lafayette school. The bids on this work were as follows: Pierce & Cox, $3330; M. Ahern, $3,497; E. C. Kelley, $3,614; W. N. McKenna, $3,718; W. F. Arkinson, $3,775; D. E. Walsh, $3,990.

The town of Framingham, Mass., has appropriated $3,800 for installing new sanitary systems in two school houses in the Saxonville section. Bids have already been received for the work.

B. A. Adams, Rutland, Vt., has the contract for installing a hot-water heating system in the residence of Dr. T. A. Cooley in that city.

A. E. Hebblethwaite has established a plumbing and heating business in Dedham, Mass., and is sending out attractive announcements to the residents of the town.

Rideout & Wilder, Washburn, Me., have added a plumbing and steam fitting department to their hardware business and have placed Clifford Jamieson in charge.

The Robert Robertson Co., plumbers, of Beverly, Mass., of which Alderman Robertson, of that city, is treasurer and general manager has surrendered the contract for the plumbing at the city hall incident to the remodeling of the building. The announcement is the result of the raising of the question of the legality of the concern doing the work because of Alderman Robertson's connection with it. The contract given up by the Robertson company has been placed with the Wilbur J. Pierce Co.

The order appropriating $6,000 for a heating and ventilating system in the John Hancock school at Quincy, Mass., which has been before the city council of that city for some time, has been finally passed. The work will be done during the approaching vacation season.

The contract for plumbing and tin work in connection with the two-family house to be erected on Farmington avenue, Bristol, Conn., for Mrs. C. A. Peck, has been placed with Roberts & Arnold, of that city.

At the annual meeting of the Turner Heater Co., held at Bristol, Conn., recently, the following officers were elected: President, Wilfred E. Fogg; vice-president, Silas Montgomery, secretary and treasurer, S. K. Montgomery.

George H. Whitlock Ridgefield, Conn., has been awarded the contract for the plumbing and tin work in connection with the extensive addition which is being made in the residence recently purchased by Joseph E. Brown. He also has the contract for plumbing and heating of Charles H. Ketcham's house and that of his sister in Lewisboro.

E. E. Drouin, an experienced plumber, has opened a plumbing establishment in the Gauthier block on Portland street, St. Johnsbury, Vt. He is also carrying stoves, rangers and heaters.

William H. Moffett and Robert Riva have formed a partnership for conducting the plumbing and heating business formerly carried on by Mr. Moffett at Berlin, N. H. Both Mr. Moffett and Mr. Riva are expert plumbers, the latter having been in the employ of the Berlin Mills as plumber for a number of years past.

A contract for installing a heating and ventilating system in Lafayette school, Boston, has been awarded to J. P. Dwyer for $5,249. The other bids received for the work were as follows: J. J. Hurley & Co., $5,294; Pierce & Cox, $5,397; Laskey & McMurrer $5,477; Lynch & Woodward, $5,625; F. W. Zemeir & Co., $5,696; Huey Bros. Co., $5,717; Smith, Alden & Co, $5,898.

W. F. Scofield, Springdale, Conn., has bought a lot of land on Main street, in that town, where he is to erect a building for the housing of his plumbing business.

Final notice of dissolution of the Shelton (Conn.) Tin & Plumbing Co. has been filed with the secretary of state at Hartford, Conn. A preliminary certificate of dissolution has been filed by the Mt. Carmel Bolt Co., of Hamden, Conn.

The Kelsey Heating Co., Syracuse, N. Y. will furnish the heating and ventilating system which is to be installed in the new $175,000 residence of ex-Governor Murphy of New Jersey.

The E. S. Hodge Co., Wakefield, R. I., has been awarded the contract for the plumbing and fixtures for the new high school building which is in process of construction in that city. Closets with improved universal flush-valves, standard lavatories and a sanitary drinking fountain are specified. The heating will be furnished by two steam heaters. The ventilation will be by means of four main shafts entering at the bottom of the room while the heat enters at the top. The Hodge company will also do the plumbing in the physical and chemical laboratories.

Fred W. Edginton, who has been employed in the past by the Mutual-Heating & Plumbing Co., Amherst, Mass., has resigned his position and is to engage in the plumbing business on his own account.

Frederick K. Pritchard, who formerly conducted a plumbing and tinsmithing establishment at Westport, Conn., but who has been away for some time past, is planning to resume business in that place.

Pierce & Cox, Boston, Mass., have been awarded the contract for installing a heating and ventilating system in the new library building which is being erected in the Jamaica Plain section of Boston, their bid of $1,696 having been approved by Mayor Fitzgerald. The list of bids received for the work follows: Pierce & Cox, $1,696; F. W. Zemeir & Co., $1,715; James P. Dwyer, $1,717; Lynch & Woodward, $1,826; Alexander Duncan Co., $1,843; C. H. Sanborn, $1,863; Huey Bros., $1,867; J. J. Hurley & Co., $1,894; Ingalls & Kendricken, $1,895; Chase & Baker Co., $2,024; Buerkel & Co., $2068.

The State Board of Health of Massachusetts is empowered by a special act to make such regulations and restrictions as it may see fit to prevent the spreading of infectious disease through the common public drinking fountain cups. This is a distinct step in sanitary matters and it is to be hoped that other states will follow suit in short order.

The contract for plumbing the new high school at Mystic, Conn., has been awarded to M. J. Holland.

Goodhue & Company, Stockton Springs, Me., are doing the plumbing in the Cape Jellison House, the contract calling for the installation of a bath-room, connecting up several sinks and other work.

Andrew J. Burnett, Melrose, Mass., inspector of plumbing for that city and Stoneham, has purchased an automobile for use in his work.

George R. Hall & Co. have the contract for installing a new boiler in the residence of Mrs. George L. Herrick, Maple street, Marlboro, Mass.

The contract for the installation of a vacuum heating system in the residence of Mrs. S. C. Belcher, Farmington, Me., is in the hands of A. E. Broderick.

An agreement has been reached between the master plumbers and the journeymen plumbers of Boston, whereby, for the first time in the history of organized labor in the city, plumbers' apprentices are allowed. The new agreement went into effect on May 1. Heretofore there has never been an apprentice employed in the plumbing business in the entire city. There were boys employed as helpers but these helpers had no right to use the tools of the trade. Although the master plumbers still claim that apprentices are not a paying investment they have agreed to allow one apprentice in every shop with an additional boy for every four journeyman.

E. A. Blanchard Co., Old Town, Me., has two large hotel plumbing contracts on hand at the present time. One is at the Kineo House at Kineo, Me., and the other at the Rockwood Hotel, at Rockwood, Me.

Bids for furnishing and installing hot-water heating plants in the Bird Island Light Station at Marion, Mass., and the Blue Hill Bay Light Station at Brooklin, Me., were received at the office of the Light House Engineers in Boston, on May 19th, as follows: Bird Island Station: O. J. Biggs & Co., Gloucester, Mass., $334.50; L. E. Andrews & Co., Gloucester, Mass., $349; McMahon & Jaques, Boston, $370; L. E. Smith Co., Gloucester, Mass., $389.75. Blue Hill Bay Station: O. J. Biggs & Co., Gloucester, Mass., $348.48; L. E. Andrews & Co., Gloucester, Mass., $375; McMahon & Jaques, Boston, $375; L. E. Smith Co., Gloucester, Mass., $365.75; Rockland Hardware Co., Rockland, Me., $360; Fred W. Bowker, Machias, Me., $369. The bids of O. J. Biggs & Co., have been recommended for acceptance in both cases.

PACIFIC COAST LETTER

San Francisco is well drained of master plumbers this week, the annual state convention in the Yosemite attracting an unusually large number. The San Francisco party left on Saturday, as planned, in a special train that obviated many of the disagreeable features usually encountered on this trip, such as making changes of cars and remaining overnight at El Portal at the entrance of the valley. By having the special the party was enabled to leave early in the morning and before dusk was landed in the heart of the Valley where the camps are located. Many supply men made the trip in company with the plumbers and if the the Southern California delegation turned out in a force corresponding to the Northern delegation the convention will be a very well attended one. It is anticipated that there will be ample time for sight-seeing, for while there is much important work to be done at the hands of the convention there is none that will require a great deal of argument and speechmaking. The tendency of the California State body has been to eliminate all unnecessary legislation and pass only that of decided importance to the trade rather than load their statute books with a long list of laws, the enforcement of which would be difficult.

There will be no change in regard to the rule that went into effect in San Francisco on May 1st regulating the number of apprentices, and the helpers that have been thrown out of employment are seeking work in out-of-town places or are going into other lines. Master plumbers have been enabled to keep those who promise to become good journeyman plumbers, and many of those who have been released were not fitted to become plumbers. Those who really desire to learn their trade will have but little difficulty in securing places either in San Francisco or in the suburban towns which are growing at a very rapid rate.

Pipe manufacturers have found a splendid market in San Francisco since the fire of 1906 and a great deal of work is being planned calling for extensive purchases in this line. The gas companies have been making extensive improvements in their properties and the city has been buying heavily for its private fire-fighting system. Chief Murphy has been planning some work supplementing the auxiliary fire protection system and proposes that a 12-in. line be laid from Lake Metson in Golden Gate Park to the outlying districts in the Western addition. Another plan of his is to have a main tapping the 100,000 gal. tank in the Park and supplying the Stanyan street district. The pressure in some of the mains of the Spring Valley Water Co. has been very low of late and complaints have been made by the fire department. In order that accurate tests may be made by the different battalion chiefs the purchase of 15 standard water-gages has been authorized. The fire department has made application for a set of four double 5-in. hydrants on the salt-water mains of the Olympic Salt Water Co., which furnishes ocean water for the Lurline Baths. These will be installed in the Fillmore street district.

J. M. Bryan, San Francisco, has secured the contract for the plumbing and drainage work in a three-story frame building being erected by Henry Schlichtman at Seventh and Capp streets. The consideration is $1,750.

The Board of Public Works, San Francisco, has just let the contracts for the construction of the new Spring Valley school. William S. Snook & Son secured the plumbing contract on their bid of $3,730, and F. P. Walsh landed the heating and ventilating contract with his bid of $9,793. A vacuum cleaning system is to be installed by the American Air Cleaning Co., at $849.

Within a short time a new plumbing establishment will be in operation at Pasco, Wash., the firm of Osborne & Wilcox being about ready to begin business there.

Work on the heating and ventilating system for the Fillmore high school at Fillmore, Cal. will be commenced shortly by the Machinery & Electrical Co., Los Angeles. The work is to cost $1,648.

Berkeley, Cal., plumbers are interested in the plans for the new Y. M. C. A. building to be erected there, this being one of the most important contracts of the year in the college city, with the exception of the Shattuck hotel.

Plans have been drawn for the new hotel building to be erected by the Regents of the State University at Berkeley on the University property on Sutter St., San Francisco, and bids will shortly be let for its erection.

The W. G. McPherson Co., Portland, Ore., was awarded the contract by the District School Board for the installation of heating systems in two public school buildings at Klamath Falls, Ore.

Word has been received from Sacramento that a municipal filtration plant is being projected for that city and that a bond election to secure $666,000 will be held soon.

The contract for the plumbing work in the new $100,000 residence of Mrs. Mary Payne at Menlo Park, a suburb of Redwood City, has been let to J. P. Ahlert of the latter place, who makes a specialty of high-class residence work. The consideration is $7,300.

A representative of the New Jersey Pipe Company is now at Port Townsend, Wash., looking over the field with the idea of securing a factory site for his company there. It is planned to locate near Irondale, where the products of the Western Steel Corporation would be at hand for manufacturing purposes.

The Four Hundred Plumbing Co., Bisbee, Ariz., has disposed of its business to Leonard Koch.

Bids are being invited for a large list of plumbing supplies, pipe and pipe machinery for use at the Mare Island Navy Yard.

PENNSYLVANIA NEWS NOTES.

A jury at Norristown, May 27th, awarded John Harold, plumber, of Rosemont, $1,000 damages in his suit against Gustavus Fletcher for running him down in a motor car.

In the case of Philadelphia Steam Heating Co. against Mrs. Inez E. S. Gassner, of Glenside, at Norristown, May 25, a jury decided that the defendant must pay a balance of $290 due for a heating plant installed by the plaintiff at her house and dog kennels. She said the plant was unsatisfactory and that as a result one of her prize dogs contracted pneumonia, causing her to nurse it day and night for weeks.

Matthew S. Hatton has been elected plumbing inspector at Chester, Pa. He was a member of city council, but resigned in order to accept the position.

The contract for the plumbing system that will be installed in the large addition to be built to the Goenner Brewery at Johnstown, Pa., has been awarded to the Johnstown Engineering Co. The contract is a particularly good one, as the structure will cost $100,000, and includes not only the installation of plumbing, but also a large amount of pipe work. The Johnstown Engineering Co. was but recently formed and incorporated and starts out on its career with one of the largest plumbing contracts that has been awarded in Cambria County for some time.

The Standard Supply Co. is the name of the new concern that has opened an office in 306 Fisher Bldg., Johnstown, Pa., and will make a specialty of furnishing and installing hotel and bar supplies. Curtis Fisher and Samuel Dyer, a well-known master plumber, both of Johnstown, are the active heads of the new concern. The latter will be in charge of all mechanical work, while the former will look after the office end of the business.

James G. Stevick, Freeport, Pa., has been awarded the contract for remodeling the entire plumbing system in the Commercial Hotel at Freeport. All old fixtures will be torn out and replaced with fixtures of the latest and most improved design. The piping system will also be thoroughly gone over and replaced where necessary.

Regitherm Results

"Seventy degrees in every room"---announced the house-wife as she finished an inspection of her thermometers; "just as the Steamfitter promised." Uniform temperature all over the house and uniform satisfaction with fuel economy are the strong promises and three of the strong Regitherm results.

A thermometer carried from room to room shows that the Regitherm will keep the entire house steadily at 70 degrees.

Like every other product associated with IDEAL Boilers and AMERICAN Radiators, the Ideal Sylphon Regitherm has, back of every promise, the results of exhaustive tests and severe experimental trials. No batteries, diaphragms, electricity or machinery to get out of order. It lasts as long as the building. The Ideal Sylphon Regitherm booklet is well worth reading. Send for copy.

AMERICAN RADIATORS & IDEAL BOILERS

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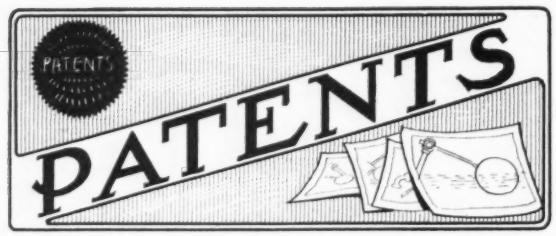


958,052. Pipe Support and Clamp. David Williams, Greensboro, N. C.

958,073. Corporation-Cock. William J. Barnstead, Galesburg, Ill. This invention is described in part as follows: The combination with a corporation cock, of a casing connected thereto, and having a longitudinal bore in communication with the bore of the cock, said casing also having a lateral opening communicating with the longitudinal bore, and a turning plug mounted in the longitudinal bore, said plug having waterways adapted to connect the longitudinal bore with the lateral opening."

958,079. Hydrant. Albert A. Bennett, Essex, Ontario, Canada. This device is described as follows: "In a hydrant a box, a service connection arranged in the lower end of said box, a valve casing having a screw threaded engagement with said connection, tapered valve seat in said casing, said seat and casing having formed therein drain ports and a by-pass, a substantially conical hollow plug arranged in said seat, said plug having a discharge port adapted to be turned into and out of engagement with said drain ports, stop shoulders formed on the upper end of said valve seat, a stop collar on the upper end of said valve plug, means on said stop collar to engage the stop shoulders on said seat, to limit the movement of said plug, and an operating rod and handle connected with said plug whereby the latter is turned on or off."

958,105. Flushing-Tank. Emil Eichman, Detroit Mich. This tank is described in part as follows: "In a flushing tank for closets, a valve controlling the water inlet, having a bell-shaped deflector located directly above its discharge opening, a manually operated discharge valve, a float mechanism adapted to rest upon the stem of the inlet valve to open said valve while acting upon the discharge valve to close the latter whereby said discharge opening may be kept under water seal at all times, and a connecting member secured to the inlet valve stem and to the float whereby the inlet valve is automatically closed when the water in the tank has again reached its predetermined level."

958,121. Water-Heating System. Jacob F. Hickerson, McComb, Ohio. This system is described in part as follows: "A device comprising a tank having a closed top and a depending lower portion, conical in shape, having a reduced opening therein, a member carried by and surrounding the lower portion of said tank and forming with said cone-shaped end, a chamber adapted to communicate with a water circulating system, and means to regulate the pressure in said tank."

958,126. Emergency Cut-off for Gas-Pipes. Michael A. Horan, Trenton, N J.

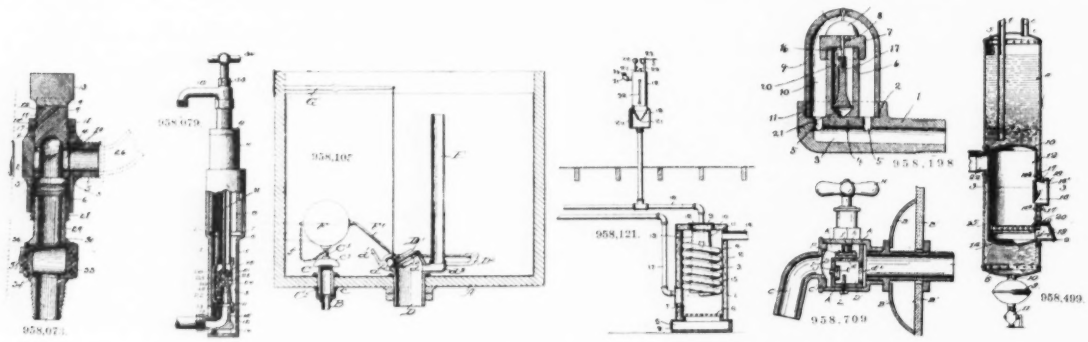
958,152. Water-Motor. Harry W. Mezger, Springfield, Ohio.

958,157. Thermostatic Temperature-Regulator. Don O. Nation, Oklahoma, Okla.

958,198. Vent Attachment for Radiators. William L. Walter, Pontiac, Mich., assignor of one-eighth to Isadore Small, Washington, D. C. This device is described in part as follows: "A vent attachment for the purpose set forth comprising a tubular neck provided with a plurality of openings, a shell detachably connected to the neck and having a vent opening in the top thereof, and further provided with a convex valve seat, said valve seat arranged at the base of the opening, a receptacle arranged within the shell and supported by the neck, said receptacle, in connection with the shell, forming a chamber communicating with the interior of the neck through the openings formed in the neck, said receptacle having a substantially conical bottom, a cap mounted upon said receptacle and provided with a centrally-disposed opening, a hemispherical valve interposed between the cap and the shell and adapted to have its valved portion to seat on the cap, an upwardly projecting stem carried by the valve and extending through the vent opening, a depending stem carried by the valve and extending through the opening in the cap, and a float connected to the depending stem, arranged within said receptacle, and having the convex lower face said receptacle adapted to contain an expansible liquid."

958,206. Regulating-Valve. Albert M. Allen, Cleveland, Ohio.

958,351. Valve Mechanism for Water-Columns. Frank C. Anderson, Cincinnati, Ohio, assignor to American Valve & Meter Company, Cincinnati, Ohio, a Corporation of West Virginia.



958,408. Water-Meter. Otto F. Kadow, Cleveland, Ohio.

958,499. Water-Heater. William T. Hicks, Bloomington, Ind. This is described in part as follows: "In a water heating apparatus, the combination with a reservoir having water inlet and outlet pipes connected therewith, of a shell constituting a combustion chamber located entirely within the reservoir and separated therefrom, said shell being located at a point intermediate the ends of said reservoir, said shell and said reservoir being each provided with openings in line with each other, flanged collars inserted in the openings in the reservoir with the flanges surrounding the openings in the shell and extending between the shell and the wall of the reservoir, rivets passing through the shell, the collar and the wall of the reservoir to secure the parts together, said openings being so arranged whereby combustion may be maintained within the shell."

958,511. Latch Mechanism for Split Stocks and Dies. Richard E. Leach, Cobalt, Ontario, Canada.

958,551. Stand-Boiler. William Sherwood, New York, N. Y.

958,563. Instantaneous Water-Heater. Simon Tache, Cleveland, Ohio. A water heater, embodying a series of circular sections having peripheral water chambers triangular in cross area and forming a closed exterior wall, said sections also having intersecting triangular cross passages, said passages in one section being staggered relatively to the passages of its adjacent sections, and oppositely disposed ports communicating between said sections and out of alinement with respect to the ports of

the adjacent sections, whereby tortuous passages within the confines of the said peripheral water chambers for both the water and the products of combustion are afforded through the heater.

958,589. Siphon-Valve. Luke T. Burns, Waterbury, Conn.

958,636. Exhaust-Regenerating Steam and Water-Heater Combined. Stephen H. Hale, St. Joseph, Mo.

958,659. Bench-Vise. John R. Long, Akron, Ohio.

958,664. Combination Valve and Meter. Edward J. Moore, Cleveland, Ohio.

958,105. Vacuum-Faucet. William Whelan, St. Joseph, Mo. This is described in part as follows: "In a combination valve faucet a wall around an outer valve chamber, a nozzle and the threaded flange thereon engaging with said wall and forming the front thereof, a removable screen seated therein, a valve handle and a hollow rod, an inner wall forming a pressure chamber provided with a water outlet at the top, an opening at the rear to receive water from a supply pipe and a vent at the front, a segmental valve seated on said top water outlet, a stem on said valve projecting into but unattached to the lower end of said rod, a valve and pin seated in said vent and a retaining pin to prevent the displacement of said valve by the pressure of air when the opposite pressure of water is reduced, substantially as described and shown."

955,780. Water-Closet Valve. George W. Fleming, Bradford, Pa. This valve is described in part as follows: "In combination with a supply main having a valve seat therein, a valve engaging with said seat and opening against the pressure of water, a valve stem having screw threads thereon and an operable part having screw threads thereon engaging with the threads on the stem for opening said valve, said threads being of a pitch that will allow the valve to be closed automatically by the pressure of the water alone."

956,944. Return Check-Valve. John Collis, Newark, N. J.

956,988. Water-Closet. William G. Miller, Ross township, Allegheny county, Pa.

956,989. Water-Heater. Howard N. Moody, New Orleans, La.

957,000. Floor and Ceiling Plate. Henry J. Robinson, Cleveland, Ohio.

NOTES FROM WISCONSIN.

The Downey & Kruse Co., Milwaukee, the heating and ventilating concern, recently passed its 47th landmark. The business was first established by Mooers, Smith & Allis in 1863, on Wisconsin St. During its progress the firm name changed to Goodman & Mooers, and H. Mooers, and later was incorporated as the Downey & Kruse Co. in 1905.

John League, chief janitor of the public schools at La Crosse, Wis., has invented a sanitary drinking pump, which is believed to be one of the first contrivances of its kind. The invention comprises all the features of the sanitary bubbler fountains and eliminates the necessity of keeping the water running all day. At a recent meeting of the La Crosse school board it was decided to install the pumps on all the playgrounds.

D. F. Akins has opened a modern heating and plumbing shop at Waukesha, Wis. Mr. Akins has had 22 years' experience in the heating and plumbing field.

Robert Singer, West Allis, Wis., has moved his plumbing shop from Seventeenth Ave. to 6813 Greenfield Ave. The new building is much larger than the old one, and will enable Mr. Singer to carry a much larger stock.

Julius A. Dinger and Julius Burkart have organized a new plumbing firm at Eau Claire, Wis. Their bonds have been approved by the corporation counsel, and the city council has moved to allow them to carry on a general plumbing business.

The Schutlz Hardware Co., Portage, Wis., has been awarded the plumbing contract on the new training school to be erected at Columbus. G. T. Mueller & Son, of Columbus, Wis., were the successful bidders for the heating contract.

CAPITOL BOILERS AND RADIATORS

"Capitol" Signifies Quality

The name "Capitol" on boilers or radiators has always meant "quality." There are on Capitol Boilers features of exclusive merit to both the heating contractor and the consumer. The dealer not only gives his customers the highest value, but is enabled to give a more satisfactory job at a decided saving in installation cost.

Capitol Radiator designs are destinctive. Both the Florentine and Puritan designs are decided ornaments to any building. They are conservatively rated and give fullest efficiency under all circumstances. Made in all heights and sizes and specialties. Catalog mailed on request.

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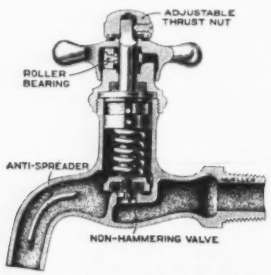
"SELF-TAUGHT MECHANICAL DRAWING AND ELEMENTARY MACHINE DESIGN."

"Self-Taught Mechanical Drawing and Elementary Machine Design" is the name of a treatise designed to meet the elementary needs of students of mechanical drawing. It presents also the first principles of machine design in order to assist the student who is handicapped by a limited theoretical knowledge. Attention has also been given to the mathematics necessary for the solution of the later problems in machine designing and a practical introduction is given to theoretical mechanics and strength of materials. An interesting portion of the work is the study of cams, gears, pulleys, shafting, etc. This valuable work was written by F. L. Sylvester, M. E., and is published by the Norman W. Henley Publishing Co., 132 Nassau St., New York City. Its cost is $2.00 postage prepaid, and its acquisition will prove valuable to those of our readers who desire to perfect themselves in the making of working drawings and in mechanical designing. Copies of "Self-Taught Mechanical Drawing and Elementary Machine Design" can be obtained from the Book Department, "Domestic Engineering," 325 Dearborn St., Chicago.

MUELLER EXTRA SELF-CLOSING WORK.

The H. Mueller Mfg. Co., Decatur, Ill., has added extra self-closing work to its line and will make it in bibbs, pantry, basin stop and urinal cocks. It is a modification of its Colonial self-closing work, which has met with so much favor at the hands of the trade and consumer. The Extra self-closing work is lighter than the Colonial pattern and lacks some of the features of the latter, but the principle of operation is the same. The closing of the cock is dependent upon a strong, phosphor-bronze spring,



Sectional View of Mueller Extra Self-Closing Work.

but the resistance of the tension is overcome and the cock made to open easily because of roller bearings which move upon tracks, one on top of the bonnet and the other in the recess of the handle. The strength of the spring makes the contact of the seat washer with the seat absolutely positive and instantaneous.

The thread at the upper end of the stem is grooved on two sides to receive the pointed end of the small screw which holds the adjustable thrust nut in an immovable position. The locking washer has a slot on either side which fits over a small pin that extends horizontally through the stem. When the cap or bonnet is screwed down over the locking washer the latter is held stationary, and the stem remains in one position because of the horizontal pin which fits in the slots of the locking washer. The only movement of the stem then is directly up and down. The spring is set to withstand a pressure of 173 pounds.

Frequently the index on self-closing work is in the wrong position when the cock is in place. In Mueller Extra self-closing work the index may be set in any position by loosening the cap or bonnet and turning the stem with the wrench placed on the adjustable thrust nut. When the index is in the desired position the adjustable thrust nut is held firmly and the cap or bonnet drawn tight.

The pattern of Mueller Extra self-closing work is attractive. There is an absence of ornamentation which would catch and hold dirt, but the lines of the cock are graceful, its proportions are excellent and it is altogether pleasing in exterior appearance.

This new self-closing work will be shown at the coming convention of the National Association of Master Plumbers in Chicago, June 28, 29 and 30. At the same time the concern will make a varied display of its line, which includes all kinds of plumbing, brass goods, water pressure regulators, sand screens, tools, etc. These goods will be shown at Orchestra Hall, where the regular convention display is to be made. At the company's branch, 37 Dearborn St., Chicago, there will be shown a water-meter tester, an apparatus for testing self-closing work, and the Mueller turbine check valve. Members and employes of the company will be present at each place, and will be pleased to have the trade call.

HOW TO STORE GASOLINE.

By G. P. Blackiston.

With the advent of automobiles, motor boats and airships, the safe storage of the gasoline fuel for such machines has become a very vital problem, and it is one which plumbers should be prepared to solve. For economy's sake, it is necessary to buy gasoline in quantities, and it must be stored in such a manner that the garage or boathouse shall not become saturated with the explosive fuel, or that the valuable gases may not escape, leaving a weakened fuel, which is wasteful and hard on the engine.

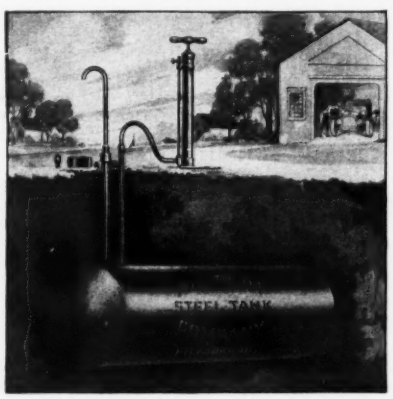
In storing gasoline it is generally recognized (and is the only means of complying with the requirements of the present-day city ordinances) that the only safe method is burying the storage vessel under-ground. This is true as far as it goes, but even then it is a poor way unless the storage tank be sufficiently heavy (at least 3-16 in. steel) and with no joints to spring open and emit fluid and its gases.

Among motor enthusiasts one tank that has been pronounced very satisfactory in construction and design is the Air-Tight Steel Tank, made by the Air-Tight Steel Tank Company, of Pittsburgh, Pa.

The one-barrel size air-tight tank, which is being used extensively, is made by the same process and from the same material as is used in the manufacture of the best railroad air-brake storage tanks—a good recommendation. It's a one-piece, seamless, brazed tank, made of 3-16 in. steel, which insures absolutely against leaks, unless the shell is actually cut.

The installation of these tanks is a simple matter as their arrangement does away with the too-commonly complicated valves, pumps, etc., all that is necessary is to dig a hole and place them therein.

The tank can be easily filled from the tank wagon or original receptacle. The accompanying illustration shows the tank buried and ready for use. When gasoline is needed the pump is attached to the tank by a hose; a slight air-pressure from the pump starts a steady stream



The Air-Tight Steel Tank.

of the fluid into the filling can or directly into the motor supply-tank. The flow of gasoline can be instantly stopped by opening the air-cock on the pump, and the gasoline remaining in the outlet pipes is automatically siphoned back into the tank.

As noted, this tank, (contrary to the usual awkward, slow, suction method) operates by the pressure system thus eliminating all the extra effort of pumping necessitated by other methods. All dripping so common with the suction system is also avoided.